AUGUST 17, 1940

Railway Age

Founded in 1856

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RAILWAY AGE

Only Large Gross Earnings Make Large Payrolls

The revival of the Transportation Bill of 1940 is a significant development, largely due to the fact that numerous railway employees have begun at last to realize that railway employment and wages depend on railway **gross earnings** and have been putting the heat on the leaders of the transportation brotherhoods in behalf of action tending to increase gross earnings.

The Conference Committee representing both houses of Congress agreed on the bill last May. It was then considered certain to pass. After having endorsed it, however, the heads of the five transportation brotherhoods suddenly turned against it and formed an alliance with the Big Business waterway lobby to get it "recommitted"—that is, returned to both houses for consideration of amendments. Those in the best position to judge expressed at the time the unanimous opinion that this had killed the bill. They would have been right if Congress had not been held in session so long. But the length of the session made it possible for many railway employees, while Congress was yet in session, to make known to the heads of the transportation brotherhoods their poor opinion of what the latter had done.

Smart Politics Which Turned Out to Be Not So Smart

The blitzkrieg of these five union chiefs for recommittal of the bill was a political maneuver to gain credit for themselves with railway employees. They learned that, instead, they had played bad politics. Hence, for weeks they have been seeking some way to revive the bill. They have at last succeeded in doing so; but we greatly doubt if the credit they will get for having revived it will equal the discredit they got for apparently having killed it.

The story of what has occurred emphasizes the widely different policies for increasing employment and payrolls that have been advocated throughout the depression, and also that apparently the policy which has prevailed—i. e., the wrong one—at last is losing its supporters because they are becoming convinced it is the wrong one. Throughout the depression the *Railway Age* has maintained that the only way to increase employment and payrolls in the nation's industry as a whole is to increase production; that the best way to do this is to put more men to work; that advances in wages **during a period of depression** are more likely to reduce than increase employment and production; and that if necessary to increase employment and production wages should be reduced. The policy of reducing hours of work and advancing hourly wages, regardless of economic conditions, was widely employed by N. R. A. seven years ago, and subsequently through other channels, with the result that we have had the first seven years in the country's entire history during which employment, production and payrolls in the country's industry as a whole have never been restored to what they had been for years previously.

There Is Only One Way to Increase a Payroll

The *Railway Age* also for many years and, especially, throughout the depression, has constantly emphasized that the only way to increase **both** employment and payrolls in the railway industry is to increase railway gross earnings. This is pertinent now because the real issue in the struggle over recommittal of the transportation bill last May was what was the best means of increasing railway employment and payrolls. Leaders of the railroad industry and of the railway labor unions joined in seeking the legislation for equalizing transportation regulation and abolishing subsidies to accomplish a definite object. That object was the increase of gross earnings that would be caused by restoration to the railways of a substantial part of the traffic taken from them by other carriers. It was assumed that any increase in gross earnings resulting would be divided between the railway companies and their employees, directly to the advantage of both of them, and indirectly to the advantage of the public.

But most railway labor leaders always have had another method of trying to increase railway employment and payrolls—that of forcing the railroads either by threats of strikes or by legislation to employ men not needed. Almost throughout the time the transportation bill was pending in Congress, A. F. Whitney, President of the Brotherhood of Railroad Trainmen, had been supporting the so-called Harrington amendment to provide that in case of consolidation of two or more railways there should be no impairment of the status or "rights" of any railway employee. As no

consolidation could possibly be made without affecting some employee, this would have prevented any consolidation whatever from being made. It was finally agreed by representatives of the railways and the labor unions and by members of the Conference Committee that the bill should provide for no change in the consolidation provisions of the Transportation Act of 1920.

Backsliding to the Discredited "Make-Work" Dogma

But at this juncture the heads of the transportation brotherhoods became unable to resist the temptation to revive their old game of politics in behalf of "make-work" legislation. Therefore, immediately after they had participated in this agreement, they reversed their position and demanded that there should be adopted an amendment providing that no employee's status or rights should be affected in case of either railway consolidations or **abandonments.** The Conference Committee would not accept this amendment, and the bill was recommitted to the two houses of Congress where it stayed for three months. It has now been revived and apparently will be passed because, owing to pressure from "back home," the leaders of the transportation brotherhoods have decided it is better politics for them to agree to an amendment providing that in case of consolidations no employees will be put in a worse position with respect to their employment during the subsequent four years, or for even a shorter period if they have been employed less than four years.

This is not an unreasonable provision and would not substantially hinder any consolidation which, on the whole, was desirable. But would it maintain, or tend to maintain, railway employment? Do any efforts to **compel** increase or maintenance of employment have that effect? On the basis of all experience this question must be answered in the negative. Why? Because (1) railway gross earnings **alone** determine the total railway payroll; therefore, (2) the only way to increase the total payroll is to increase gross earnings; and (3) forcing the railways, by legislation or otherwise, to spend money employing men they **don't** need, does not increase or maintain **total** employment or **total** payroll, but merely prevents them from spending an equal amount in employing men that they **do** need.

What is the proof of these statements? It is afforded by the statistics for the last 18 years given in the accompanying table. These were years of the greatest fluctuations in railway gross earnings, number of employees, and total and average compensation of employees in the entire history of the United States. They included all the prosperous years of the '20's and all the depression years of the '30's. Gross earnings ranged from a maximum of almost 6 billion 400 million dollars in 1926 to a minimum of less than 3 billion 100 million in 1933—a decline of almost 52 per cent. The number of employees ranged from a maximum of 1,858,000 in 1923 to a minimum of 939,000 in 1938—a decline of almost 50 per cent. The average annual compensation of employees ranged from a minimum of $1,445 in 1933 to a maximum of $1,886 in 1939—an increase of 30 per cent. Total compensation paid to employees ranged from a maximum of over 3 billion dollars in 1923 to only 1 billion 400 million in 1933—a decline of 53 per cent. **And yet never in any brief period during this 18 years of great fluctuations did the total railway payroll** (capital and operating) **deviate more than slightly from the 47 per cent of gross earnings which it averaged for the entire 18 years.**

Year	Railway Gross Earnings (000,000)	Total Compensation of Railway Employees (000,000)	Per cent Compensation to Gross Earnings	Number of Railway Employees	Average Compensation per Railway Employee
1922	$5,559	$2,641	47.5	1,626,834	$1,623
1923	6,290	3,004	47.8	1,857,674	1,617
1924	5,921	2,826	47.7	1,751,362	1,613
1925	6,123	2,861	46.7	1,744,311	1,640
1926	6,383	2,946	46.2	1,779,275	1,656
1927	6,136	2,910	47.4	1,735,105	1,677
Total	36,412	17,188	47.2	10,494,561	9,826
Average	6,069	2,865	47.2	1,749,093	1,638
1928	6,112	2,827	46.3	1,656,411	1,706
1929	6,280	2,897	46.1	1,660,850	1,744
1930	5,281	2,551	48.3	1,487,839	1,714
1931	4,188	2,095	50.0	1,258,719	1,664
1932	3,127	1,513	48.4	1,031,703	1,466
1933	3,095	1,404	45.4	971,196	1,445
Total	28,083	13,287	47.3	8,066,718	9,739
Average	4,681	2,215	47.3	1,344,453	1,623
1934	3,272	1,519	46.4	1,007,702	1,508
1935	3,452	1,644	47.6	994,371	1,653
1936	4,053	1,849	45.6	1,065,624	1,735
1937	4,166	1,985	47.6	1,114,663	1,781
1938	3,565	1,746	49.0	939,171	1,859
1939	3,995	1,864	46.7	987,943	1,886
Total	22,503	10,607	47.1	6,109,474	10,422
Average	3,751	1,768	47.1	1,018,246	1,737

Wages Stick at 47 Per Cent of Gross

In the first six years of the period, when gross earnings averaged 6 billion 100 million dollars annually and the number of employees averaged over 1,749,000, the total payroll was 47.2 per cent of gross earnings. In the six years ending with 1933, when gross earnings averaged less than 4 billion 700 million dollars annually and the number of employees 1,344,453, the payroll was 47.3 per cent of gross earnings. And in the six years ending with 1939, when gross earnings averaged only 3¾ billion dollars annually and the number of employees only 1,018,246, the payroll was 47.1 per cent of gross earnings. Various kinds of legislation were enacted during this period to compel the railways to maintain or increase employment. The average annual wage (1) declined from 1922 to 1924; (2) increased from 1924 to 1929; (3) declined from 1929 to 1933; and (4) increased again from 1933 to 1939. But, in spite of all these and other changes, the total payroll (capital and operating) was always working back toward 47 per cent. In the six years ending with 1933, when the average wage was only $1,623, the total payroll was 47.3 per cent of gross earnings; in the six years ending with 1927, when annual compensation was $1,638, the payroll was 47.2 per cent of gross earnings; and in the six years ending with 1939, when average annual compensation was $1,737, the payroll was 47.1 per cent of gross earnings—the payroll having actually been the **largest** percentage of gross

earnings during the six-year period when average annual compensation was the **smallest.**

We have presented and emphasized these statistics in so much detail because they so well illustrate something which is of vital importance to all the industries of this country, all their employees and all who want to be employed by them at good wages—i. e., that how much the **payroll** of any given industry, or the country's industry as a whole, can be, and therefore how many persons it can employ at any given average wage, depends almost entirely upon its gross earnings. One branch of the country's industry may be able to afford a payroll only 30 per cent of its gross earnings; another a payroll of 40 per cent; another a payroll of 50 per cent; but whatever the percentage for that industry may be, it is determined by economic laws that are unalterable by all the legislation and union-labor activities that can be carried on. It necessarily follows that the **only** way permanently to increase **both** employment and wages in the country's industry as a whole is to increase the gross earnings of industry as a whole; and, in the absence of inflation ruinous to all, the only way to increase the gross earnings of industry as a whole is to increase the production of industry as a whole.

You Can't Have a Sound Arm On a Diseased Body

The major premise upon which have been based the economic policies that have prevailed in this country during the last seven years has been that wage earners as a whole could and should be largely benefited by government policies increasing wages regardless of the effects on the industries paying the wages. But all the previous economic experience of the world had shown that increases of national income were much more valuable to *all classes* than changes in the distribution of it, and that governmental and other artificial efforts to change its distribution, almost invariably, if not invariably, caused reduction in the amount of it produced. And the lesson taught by all this previous experience has been merely repeated in the lesson taught by the New Deal.

When railway employees and those desiring to be employed by the railways decide that their principal need is a prosperous railway industry, and act accordingly, there will result increases in railroad gross earnings, making possible payment of even higher than present wages to a greatly increased number of employees. And when all the people of the country decide that what they most need is a large increase in national income caused by a large increase of production, and begin favoring policies essential to causing this increase of production, there will soon result an increase in the total payroll of the country and of each industry far exceeding what has been or ever could be secured under such governmental and labor-union policies as have been followed during the last seven years.

Some By-Products of Maintenance Machines

Primarily because of the savings in expenses that may be effected thereby, the mechanization of maintenance-of-way operations has taken place rapidly in recent years, until today there is hardly a maintenance task that does not involve the use of power equipment, to some extent at least. When buying such equipment it is the almost universal practice to justify the purchase on the basis of the actual dollars-and-cents savings that are expected to accrue through its use, and hence it is not surprising that the view is too often held that the sole advantage of power equipment lies in its economy. This is a mistaken conception, for it is a fact that the use of such machines by the maintenance department has other important advantages, which accrue particularly to the transportation department. While such benefits are intangible in that it is not generally possible to measure them exactly, they are none the less real, and in some instances they may even rival the economy consideration.

Consider, for instance, the extent to which the transportation department is benefited as a result of the increased speed with which maintenance work is conducted with mechanized gangs as compared with hand labor. Slow orders have always been a thorn in the side of the operating department, and the tightening of train schedules that has occurred in recent years has emphasized the necessity for reducing them to a minimum. Through the use of mechanical equipment, maintenance jobs can now be completed in a fraction of the time that was formerly required, thereby reducing the delays and expense incident to the maintenance of slow orders or the routing of trains over other tracks. The importance of this consideration in the light of increased train speeds needs no elaboration.

The desire to reduce expensive delays to trains may even be the primary consideration behind the decision to mechanize a particular operation. Recently a western road was confronted with the task of renewing the deck on a double-track viaduct on a main line. While the work was in progress it was necessary to "kill" one track and to route all trains over the other track, an expensive procedure involving delays to important trains. However, by equipping the bridge crew with a complete complement of mechanical tools and equipment, including such units as portable saws, bolt tighteners and wood augers, it was possible to complete the job in about one-fourth the time that would have been required if all the work had been done by hand, thereby substantially reducing the burden on the transportation department. Obviously, there was also a marked reduction in the cost of the work, as compared with that which would have prevailed if hand labor had been used exclusively.

The ability of mechanized gangs to accomplish given tasks in a minimum of time is of invaluable aid to the operating department during emergencies involving

damage to tracks or structures. Delays to trains occasioned during such emergencies are extremely costly, and each hour that is saved in restoring disrupted schedules means a corresponding reduction in the cost of the emergency. An outstanding example of the truth of this statement was afforded by the experience of the New England roads following the flood and hurricane disaster in that region in the fall of 1938.

Today more than ever before, transportation departments are demanding smooth-riding track and, generally speaking, they are getting it. Credit for this must be attributed to a large extent to the power machines used in track maintenance. This is true not only because they reduce unit costs and, therefore, make possible the stretching of the maintenance dollar, but also because their use improves the quality and uniformity of the work done and thereby enhances the riding qualities of the track.

Four Years of Heavy Thinking

On October 13, 1936, the Interstate Commerce Commission instituted upon its own motion an inquiry to determine the unlawfulness *in any respect* of the rates on petroleum and its products from California to Arizona.

Much evidence was introduced, including elaborate cost studies by respondents and the Commission's staff. It would seem, judging by the nearly four years this proceeding has been pending and the fact that it was considered by the entire Commission and its staff, that these studies; all other facts; the law of the land; the "national transportation policy" (*if any*); and that elusive indefinite something commonly called the "public interest," could have been given a thorough "going over."

The Commission states with respect to its minimum rate power:

"This power has been used sparingly. Generally its application has been confined to instances in which we have found that a rate was so low as needlessly to sacrifice a carrier's revenue."

It found in substance that the railroad was the lower cost agency and that railroad rates were well above their costs, plus a reasonable return on the investment; were therefore remunerative and refused to increase them. It also found in substance that the truck rates were, generally speaking, considerably below their costs, without any return on the investment, and that higher rates were justified, but refused to order truck rates increased to a remunerative basis, notwithstanding that truck costs are relatively easy to ascertain.

The maintenance of the *status quo* which permits trucks to continue to participate in traffic at rates considerably below their costs was justified to the satisfaction of the Commission by concluding that—while the costs were correctly computed according to the standards set forth by Commission accountants—more intensive study of methods for determining costs are being made and that nothing definite shall be done until the methods of cost analysis are perfected. The proceedings were not even held open for future consideration. The decision says in substance that although the I. C. C. is unable to find any error in its cost finding methods, nevertheless it may, at some future date, discover some error; therefore the injured respondents must take it "on the chin" while the I. C. C. leisurely continues its studies.

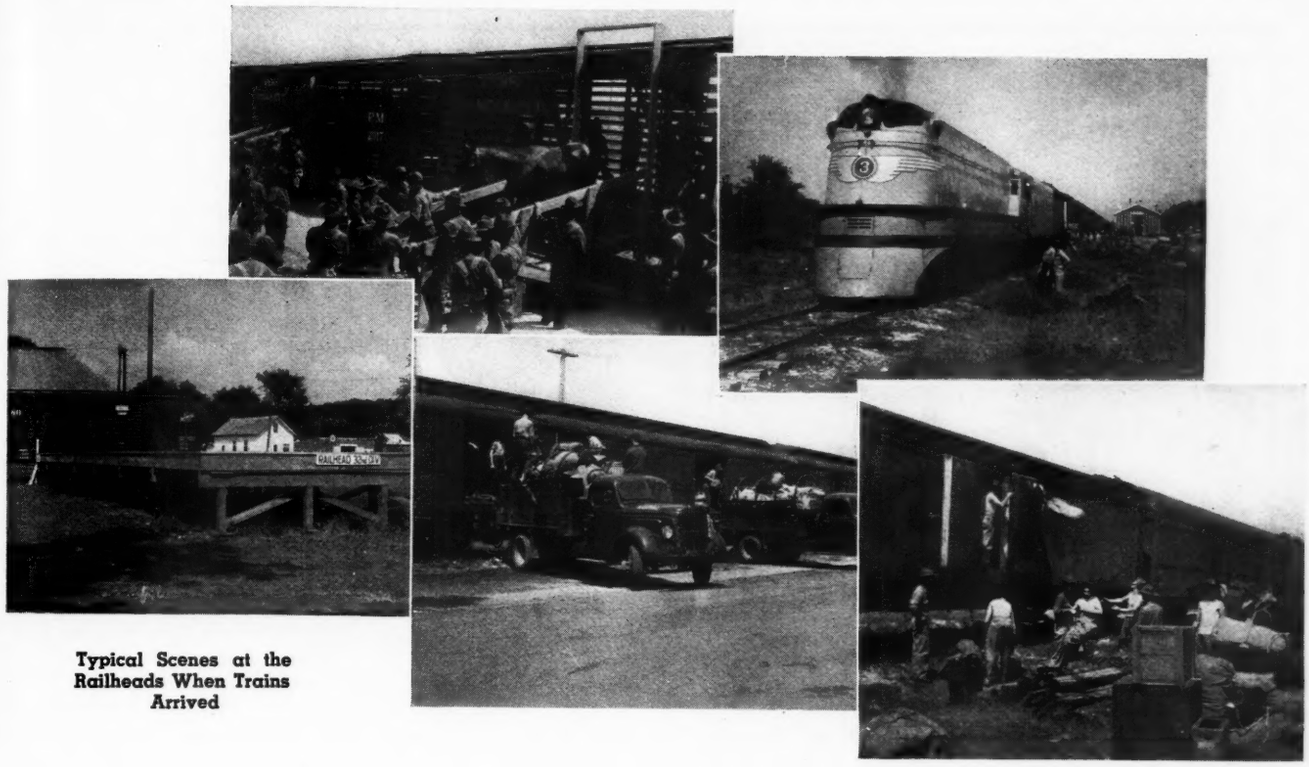
To our knowledge, costs have been receiving active consideration by the Commission for at least 15 years. The railroads lost one-third of their revenue (largely the cream) to the trucks during this period. The trucks have gained, probably, 40 per cent in traffic since the enactment of the Motor Carrier Act, largely at railroad expense, and by "picking and choosing" traffic. Germany prepared for and over-ran Continental Europe during the period when this Arizona petroleum case has been pending and the Motor Carrier law has been effective. A lot of damage may be done in a small amount of time. There are blitzkriegs in transportation as well as in military affairs—but the I. C. C. continues to wave its appeaser's umbrella, dealing resolutely only with those interests who are not inclined to belligerency.

In contrast with the indecision and slowness of this decision, the Commission told the Official Territory railroads within six months after the issue had been raised in 1936 that they could not give free pick-up and delivery where the rate was less than 45 cents. The cost evidence in that case was not nearly so complete as in the Arizona petroleum case. No evidence was introduced, or even requested, by the Commission in that proceeding to determine whether the marked advantage being enjoyed by the trucks was upon a remunerative basis. The trucks were permitted to continue giving free pick-up and delivery without any question whatsoever but the railroads were given the "red board."

The trucks had to have a rate increase the next year, notwithstanding this advantage—so undoubtedly they were not earning costs somewhere in their operations. They also sought and obtained protection against themselves through *minimum rate orders without submitting any cost data.* Blanket minimum rate orders were issued generally and indiscriminately on short order, against large groups of motor carriers, particularly in Official Territory, **without any cost evidence** or any other sound standard of reasonableness, wherever the complainants were supported by their Motor Carrier Rate Bureau.

The Commission has not been hesitant in accepting cost evidence and in prescribing minimum rates based thereon in import, export, fourth section and other proceedings, with cost figures which have been much less convincing than those put in evidence in the Arizona case. Whenever a motor carrier is affected, an "india rubber" standard seems to be employed.

Individual railroads, shippers and trucks, or groups of them, might be expected selfishly to fail to appreciate their full responsibility, but the Interstate Commerce Commission has no such inhibitions upon its concept of the public interest. Why can it not rise above pettiness to a comprehensive view of the nation's transportation problem?



Typical Scenes at the Railheads When Trains Arrived

Railroads Move 150,000 for Army Maneuvers

Carriers perform largest troop movement since World War

THE American railroads completed their largest troop movement since the first World War when they moved more than 150,000 troops of the Regular Army and National Guard and their equipment from all parts of the country to the extensive maneuver areas of the four Armies from July 30 to August 12, inclusive, and demonstrated their fitness to serve the nation as its only mass transportation agency. On August 4, 5 and 6, the three heaviest days of the movement, the railroads transported more than 100,000 troops into the maneuver areas of the First, Third and Fourth Armies. **In this three-day period, they moved nearly one-sixth as many men as were transported during the entire 31 days of the heaviest month's movement during the World War.**

On August 11 and 12 they transported an additional 35,000 men of the Second Army into Western Wisconsin. All in all the carriers took care of more than half of the entire body of troops participating in this most extensive program of army "games" in peace time history; the remainder were transported over the highways by army truck.

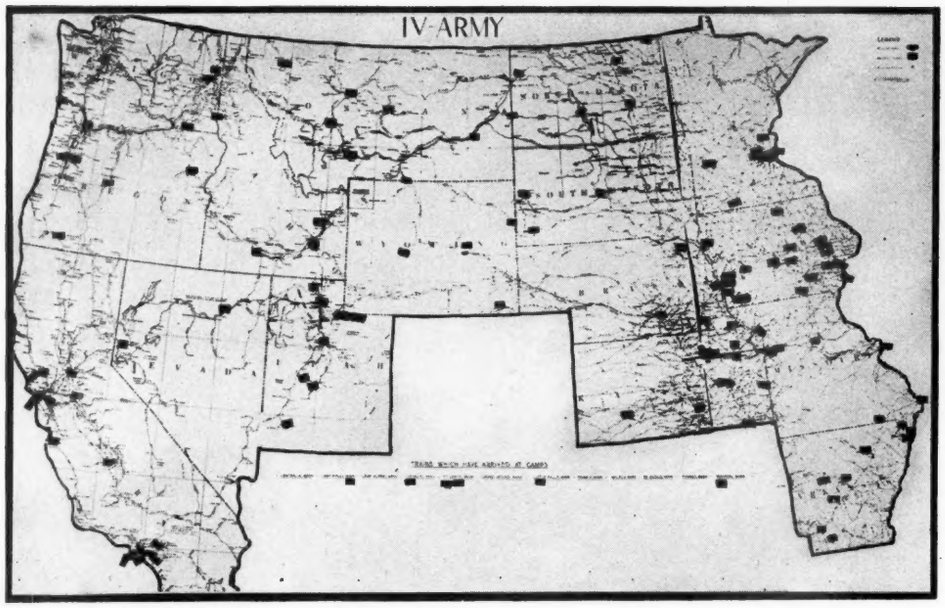
The Quartermaster General's office is reported as pointing out that it is highly unlikely that the railroads would be called upon, even in war time, to handle more troops in a similar period than have been transported during the peak days of the present movement. Army and railroad officers have expressed satisfaction with the results. Despite very unfavorable weather conditions in some sections, trains, on the whole, were either ahead of time or substantialy on the schedules worked out, and there were no instances of insufficient equipment to meet the demands.

Principal significance of the movement was its demonstration of the administrative tie-up between the army and the railroads for making transportation arrangements and for keeping track of the movement during its progress. Also it was the first job handed to the newly-created Military Transportation section, Car Service division, Association of American Railroads, in charge of Arthur H. Gass. This section set up shop in the office of the Quartermaster General at Washington, D. C., on August 1 and started to work getting the boys to camp before the title paint was dry on the office doors.

Here is how the A. A. R. describes the work.

"The new section's first job was to transport 150,000 troops and their equipment to certain areas throughout the United States so that they could participate in mock warfare. Following the maneuvers, the men were to return home. Both movements were scheduled for that period when the railroads' summer business was at its height and passenger equipment was being used for the large volume of vacation travel.

"Immediate steps were taken to insure successful handling of the troops. Arrangements were made to



Map of Fourth Army Area. Maneuver Districts Are Located in Western Washington and Central Minnesota. Rectangles Are Tags Marking Troop Units En Route. Those Pinned Under Names of Camps Along the Bottom Indicate Units Which Have Arrived and Detrained

Photo by U. S. Army Signal Corps

obtain the necessary equipment when and where it was needed. Schedules were worked out by the regional passenger associations in co-operation with the military authorities and the operating departments of the railroads affected. Field representatives were appointed to assist in the smooth operation of troop and supply trains, and railroad operating and passenger traffic officers were assigned to ride these trains. The office of the Military Transportation section became the nerve center of the entire operation, and reports on the progress of the movement were to be sent in promptly."

Map Gives Instant Intelligence

Chief item of interest in the direction of troop movements is a large map located in the Commercial Traffic branch of the Quartermaster General's office. Divided into four parts, each of which shows the area covered by the four armies, respectively, the map carries lines representing railroad routes leading to the concentration areas. Red pins are inserted thereon to indicate junction points, while detraining points are marked by pink arrows. Green tags represent units of the Regular Army enroute by train and red tags, of the National Guard.

As the hundreds of special trains close in on the maneuver areas, progress telegrams come in to the Military Transportation section at the rate of about one per minute, which information is immediately relayed to the Quartermaster General's office and recorded on the map by proper movement of the tags. When a transport unit reaches its destination camp, its representative tag is removed from the territorial area of the map and tacked under the name of the camp, indicating completion of the movement.

The principal advantage of the map co-ordination method is that diversion of troops trains—an important necessity in wartime—is made possible quickly by the fact that the location of each train is known constantly. The flexibility thus achieved is important even in such peace-time movements. During the troop movements just completed trains on the whole maintained schedules well—were even well ahead of time in certain instances—in spite of excessively hot weather in some sections and torrential rains and winds of hurricane proportions in others.

All but the Fourth Army are holding war games in single, relatively concentrated maneuver areas; the Fourth's locale is split into two sections—one in western Washington and the other in central Minnesota. Locations of principal camps where troops were detrained, as marked on official maps of the U. S. Army Signal Corps, are as follows:

First Army

Canton, N. Y., Dekalb junction, Knapps, Lisbon, Norwood, Oswego, Potsdam, Watertown, Winthrop, Rensselaer Falls, Richville and Syracuse.

Second Army

Black River Falls, Wis., La Crosse, Wyeville, Camp McCoy, Warren, Camp Williams, Tunnel City and Wisconsin Rapids.

Third Army

Bringhurst, La., Boyce, Cravens, Camp Shelby, Miss., De Ridder, La., McLaurin, Miss., Pitkin, La., Brooklyn, Miss., and Woodworth, La.

Fourth Army—western

Centralia, Wash., Camp Murray, Chehalis, Ft. Lewis, Grand Mound and Tenino.

Fourth Army—eastern

Camp Ripley, Minn., Little Falls, Onamia, Milaca, St. Cloud and Wahkon.

Movement of the Second Army

Typical of the manner in which these armies were handled was the performance of the railroads in handling the Second Army. Twenty-three railroads participated in the movement of 32,000 officers and enlisted men, 1,234 animals and impedimenta from 100 points in West Virginia, Ohio, Kentucky, Indiana, Michigan, Illinois and Wisconsin. Sixty-seven trains were delivered to the Chicago & North Western and the Chicago, Milwaukee, St. Paul & Pacific at Chicago and these roads, the only two railroads operating between Chicago and the Sparta area, consolidated them into 56 trains, of which 38 were operated over the Chicago & North Western and 18 over the Chicago, Milwaukee, St. Paul & Pacific. In addition, 12 trains originated on the C. & N. W. and 9 on the C. M. St. P. & P., with the result that 50 trains were operated over the former and 27 over the latter road between August 9 and 13. In the Sparta area, these

trains were unloaded at Sparta, Camp McCoy and Tunnel City on the North Western and the Milwaukee railroads, at Wyeville on the North Western and the Chicago, St. Paul, Minneapolis & Omaha, at Camp Williams on the Milwaukee and the Omaha and at Warrens and Black River Falls on the Omaha.

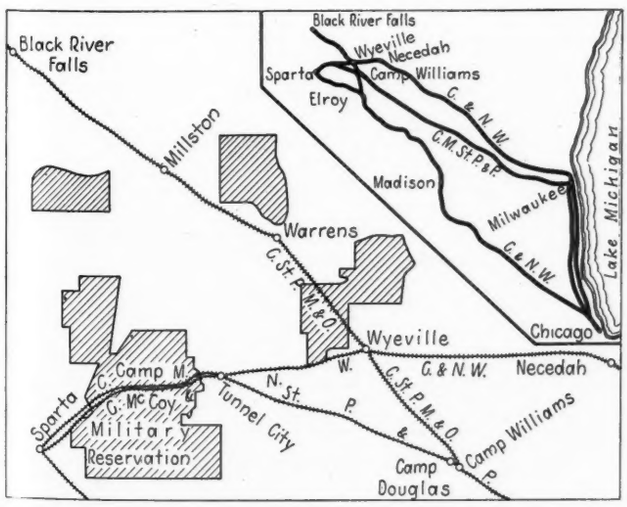
The Western Military Bureau at Chicago, which is composed of passenger and operating officers of the railroads operating in the Second Army area, with the aid of the Car Service division, assigned the routes, prepared the train schedules and arranged for equipment two months prior to the movement. Individual railroads prepared facilities for loading and unloading troops.

One of the requirements of the army was that the originating carrier retain responsibility until its trains were delivered to the North Western and the Milwaukee. As a result, the originating carriers operated over the tracks of connecting and switching lines to the Crawford Avenue and California Avenue yards of the North Western and the Western Avenue yards of the Milwaukee in Chicago. The time alloted the latter roads for changing locomotives, and for consolidating, inspecting, icing and watering the trains was 30 min. for trains of 10 cars and 45 min. for larger ones. The delivery of the trains at the camp was based upon the time required by the army to unload the trains, two to three hours.

North Western Used Two Routes

The North Western, because of its facilities at Chicago and its three routes, one via Madison and two via Milwaukee, was assigned 50 trains. With its facilities it was able to handle 40 troops trains and its regular trains, as well as 30 empty troop trains over its freight and passenger lines via Milwaukee. Between Clyman Junction and the camp, 126 miles, the line is single track and to insure the rapid movement of this traffic the dispatcher's force at Adams was increased by three operators. By thus concentrating on this route, the Madison route was not over-taxed with 10 troops trains and its regular traffic of 10 trains a day in each direction.

On the North Western, five trains were operated on August 6, seven on August 9, eleven on August 11, nineteen on August 12 and nine on August 13. Trains from the California Avenue yards in Chicago departed between 6:30 p. m. and 11:45 p. m. on August 11, and those from Crawford Avenue between 12:20 a. m. and 10:30 a. m. on August 12 and between 12:30 a. m. and 7:40 a. m. on August 13. As a result, the lines were free of special trains until 6:30 p. m. on August 11, for fourteen hours on August 12 and after 7:40 a. m. on August 13 and regular freight trains were moved in this off-period with a minimum of interference. The elapsed time scheduled for the 263 miles between California Avenue and Camp McCoy was 5 hr. 51 min. at 45 m. p. h. or 7 hr. 31 min. at 35 m. p. h.



Upper Right—Routes of the North Western and the Milwaukee Between Chicago and the Sparta Area
Lower Left—Location of Railheads and Their Bivouacs (Shaded)

On the first three days, the trains were consolidated, inspected, iced and watered with existing passenger facilities and forces at the California Avenue yards but on August 12 and 13 this operation was transferred to the Crawford Avenue yards so as not to interfere with the servicing of streamliners and other passenger trains at California Avenue.

This transfer necessitated the installation of temporary facilities of adequate capacity at Crawford Avenue. Five tracks, each of which would accommodate the longest train to be handled, were set aside for inspecting, icing and watering. Trains were spotted on the two outside and the middle tracks and cars of ice were set on the two intermediate tracks, from which the trains were iced. Water for the cars was supplied by a booster pump and a 4-in. main 4,200 ft. long laid under the center track with extensions to the two outside tracks at intervals of 40-ft. Box cars, containing train supplies and replacement parts for cars, were placed on a sixth track adjacent to these five tracks so that repairs could be made without delay. A force of 60 men was organized to service the trains.

The unloading of trains at the camp area presented no difficult problems for trains carrying troops only could be unloaded without platforms and at any point near the bivouac. The army provided movable chutes and platforms for unloading trains carrying animals and supplies. During the two to three hours alloted for unloading, the North Western removed trains to storage tracks or for return to Chicago or to originating carriers. A return movement of 40 trains was necessary because connecting lines had to have their equipment for the movement of the first army or for the service from which they were borrowed and because the North Western had arranged to loan the Pennsylvania some passenger cars for a large passenger movement to Elwood, Ind., on August 17. Cars held at the camp for the return movement were stored on existing tracks at Adams, which has a capacity of 1,500 cars, and at Sparta, Millston, Merrillan and Elroy.

In addition to handling troop trains, the North Western moved a large part of the provisions required during the encampment. While some supplies were moved prior to August 1 and stored at the camp, the more perishable products were moved daily in regular freight service. These were moved to Camp Douglas, from which point two carloads were dispatched to each bivouac daily. In addition, a special supply train was operated from Chicago to Camp McCoy each day, while three carloads of bread were transported from Madison daily.

Milwaukee Handles Chicago Contingents

Of the 27 trains operated over the Milwaukee, 11 departed from Chicago on August 11, and 12 on August 12. Five of these left the Union Station between 1 a. m. and 8:20 a. m. on August 11. Six were handled through Western Avenue yards between 12:01 a. m. and 9:25 a. m. on August 11 and 12 between 12:30 a. m. and 11:30 a. m. on August 12. These trains, as well as 16 trains of empty cars returning, were operated on a schedule of 5½ or 6½ hr. over the double track line via Milwaukee by the regular dispatcher and five extra

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Union Pacific Tenders Embody Many Improved Features

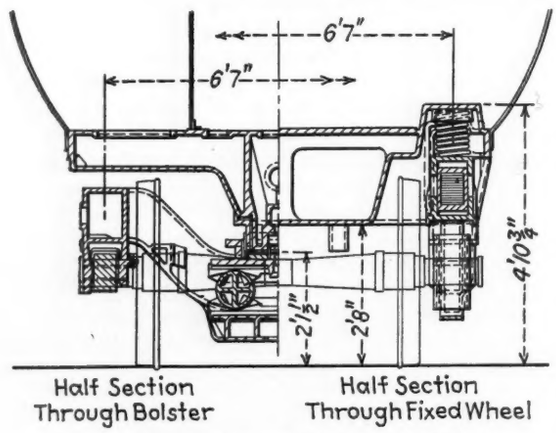
Unique 14-wheel design, of large capacity for its length and weight, has large wheels, low unit rail and brake shoe pressures, improved stability and easy riding properties

EXPERIENCE during recent years has shown that important operating economies result when locomotives are provided with tenders having increased coal and water capacities. Enginehouse stalls and turntables limit the total length of locomotive and tender and modern power requirements have increased the sizes of the locomotive proper to such an extent that the length of the tender is generally restricted.

The clearances of the right-of-way place a definite limit on width, and the height is governed by water and coal-loading facilities. This too often results in a short tender wheelbase and a high center of gravity.

The use of two swiveling trucks, either six or eight-wheel, and providing for the required end clearances, in most cases brings about comparatively short truck centers and necessitates liberal side bearing clearances. These factors tend to produce instability, considerable surge in the cistern, high spring maintenance and low wheel mileage between turnings.

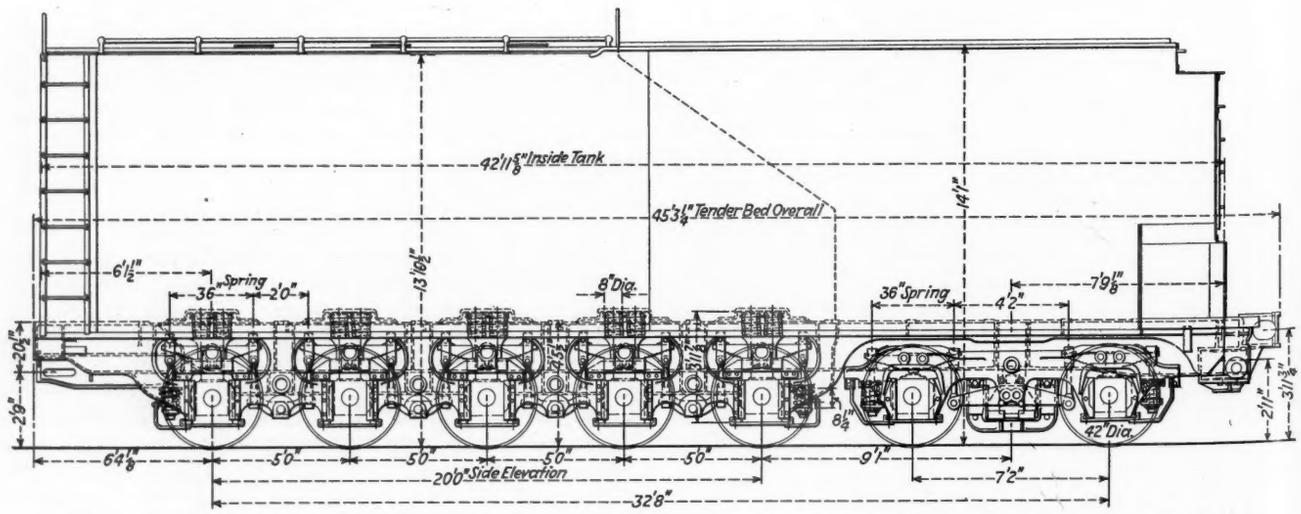
Much thought has been directed to a solution of these problems, the demand for more coal and water, higher speeds and increased braking power, indicating that not only are more wheels required but larger diameter wheels as well, and generally improved construction are essential. One important improvement, commonly used for a number of years on American railroads, is the inclusion



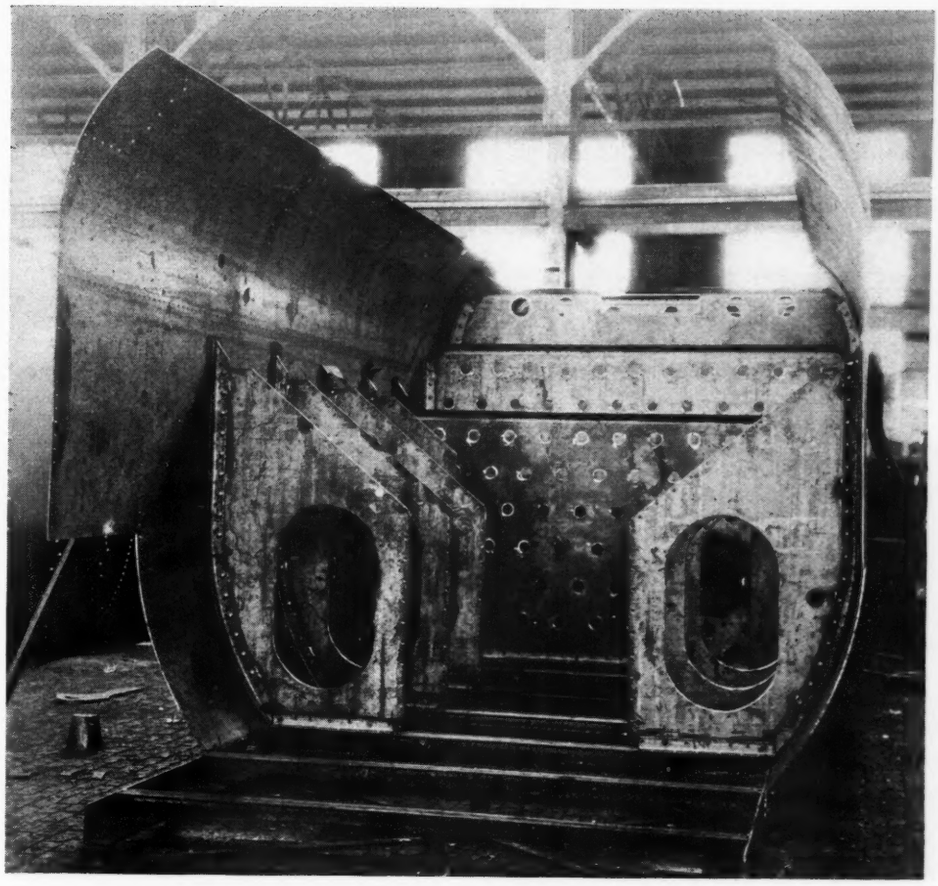
Half Sections Through the Tender Bed

Important Specialties on the New Union Pacific 14-Wheel Tenders

Cast-steel tender bed and front truck frame	General Steel Castings Corporation, Granite City, Ill.
Steel forgings	American Locomotive Company, New York
Roller bearings (10)	Timken Roller Bearing Company, Canton, Ohio
(5)	SKF Industries, Philadelphia, Pa.
Simplex unit-cylinder clasp brakes	American Steel Foundries, Chicago
Air brakes	New York Air Brake Company, New York
Brake shoes	American Brake Shoe & Foundry Co., New York
Stoker	Standard Stoker Co., Inc., New York
Tender wheels and tank plate	Bethlehem Steel Company, Bethlehem, Pa. Carnegie-Illinois Steel Corporation, Pittsburgh, Pa.
Coupler	National Malleable & Steel Castings Co., Cleveland, Ohio
A5XB draft gear	W. H. Miner, Inc., Chicago
Radial buffer and flexible steam heat connection	Franklin Railway Supply Co., Inc., New York
Stoker engine steam-line flexible connections	Barco Manufacturing Company, Chicago
Rubber pedestal liners and tank hose	U. S. Rubber Company, New York
Wovenstone steam-heat pipe insulation	Union Asbestos & Rubber Co., Chicago
Metallic steam conduit	Vapor Car Heating Co., Inc., Chicago
Tank valves	Crane Company, Chicago



Elevation of the Union Pacific 14-Wheel Tender Showing the Equalization System and the Coil Springs Over Each Journal Box



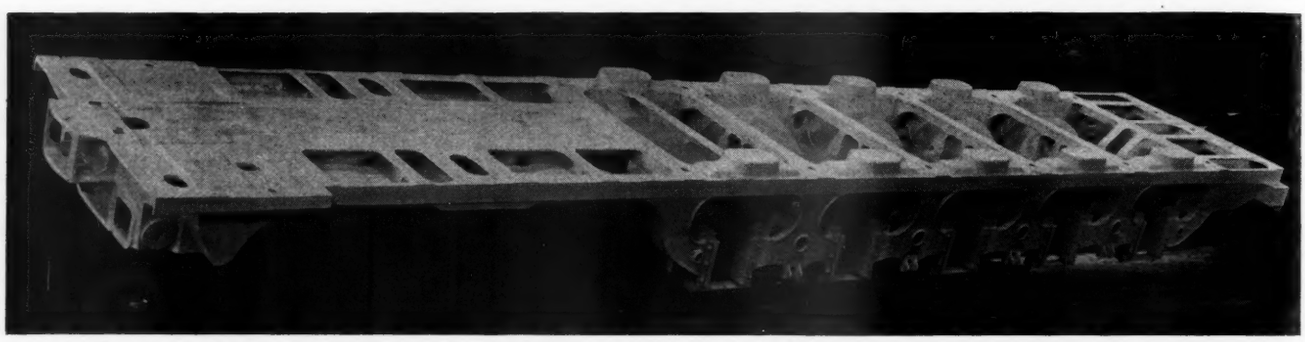
Interior of the Tender Tank Showing General Construction and Arrangement of the Splash Plates

Union Pacific 14-Wheel Locomotive Tender, Equipped With Commonwealth Cast-Steel Tender Bed Having Integral Pedestals for the Five Rear Pairs of Wheels

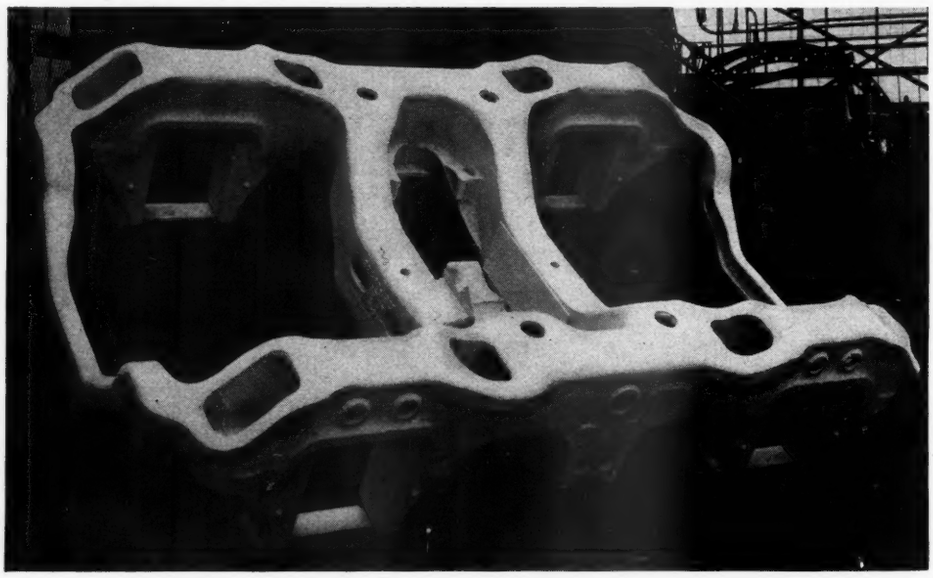
of the bottom of the tender cistern as an integral part of the cast-steel water-bottom tender frame, in this way utilizing the depth of the frame for water storage.

The decision of the Union Pacific to build large tenders having capacities for 23,500 gal. of water and 25 tons of coal for long runs and high-speed operation necessitated departures from conventional American tender designs. The increased capacities were to be obtained within an established total wheelbase, larger diameter wheels, lighter rail loads per pair of wheels, more uniform weight distribution, and increased wheel mileage, with high-speed braking conditions. This new-type tender was also to incorporate improved riding qualities, better stability and lower track stresses than existing types of tenders which, up to this time on the Union Pacific, had utilized conventional 6-wheel trucks on all large tenders.

The engineers of the Research and Mechanical Standards department of the Union Pacific, collaborating with engineers of the General Steel Castings Corporation, after a number of studies had been developed, decided upon a construction with a wheel arrangement similar to a 4-10-0 type locomotive with 42-in. diameter wheels throughout. A four-wheel swiveling, laterally-controlled, outside-bearing guiding truck was located at the forward end. Rearward of this were placed five pairs of wheels guided in pedestals cast integral with the water-bottom tender frame, or as now designated, the tender bed.



The Commonwealth Cast-Steel Tender Bed Showing Details of the Integral Pedestal Arrangement for the Five Rear Pairs of Wheels



Commonwealth Cast-Steel Front Tender-Truck Frame Arranged for Renewable Centering Device Used with Tender Bed

The leading truck is the General Steel Castings Corporation four-wheel equalized type with a roller centering device designed for 17 per cent initial and constant resistance.

The five pairs of pedestal wheels are equalized together, with one semi-elliptic spring and two coil springs over each of the roller-bearing journal boxes. The front and back end of each equalizing system is attached to the frame through cushioning coil springs. Between each box and the semi-elliptic spring saddle is a centering device to resist lateral movement.

With spring rigging equalization, a three-point loading is obtained, one point being at the swiveling truck center plate and the other two points in the pedestal group equalization assembly.

Each pedestal of the fixed group has hardened spring-steel pedestal liners made up of two plates between which is bonded one-half inch of rubber, arranged to permit ½ in. of lateral movement of the box. Additional lateral is provided between the box and pedestal liner, permitting a total lateral movement of 1¼ in. on each side of axles Nos. 3, 4, 5 and 6, and ¾ in. on each side of axle No. 7.

This novel tender construction necessitated the development of suitable brake rigging. The American Steel Foundries, in collaboration with engineers of the Research and Mechanical Standards department of the

(*Continued on page 254*)

L. A. Downs Passes On

Brilliant laborer-to-president career closes in Chicago on August 10

Lawrence A. Downs

LAWRENCE A. DOWNS, chairman of the board of the Illinois Central, died in Chicago on August 10, of a complication of high blood pressure and heart disease, at the age of 68, thus closing a brilliant career as a railway executive, during the course of which he rose from section laborer to president and later chairman of the board of one of the country's great railway systems. Mr. Downs was born in Greencastle, Ind., on May 8, 1872, the youngest of a family of eight, and his first railroad connection was during summer vacations while working his way through school, when he served as a laborer in the section gang of which his father was foreman.

Immediately following his graduation from Purdue University, Mr. Downs worked for a short time on the Vandalia, now a part of the Pennsylvania, and then joined the engineering corps of the Illinois Central at Chicago in 1896. Six months later he was promoted from rodman to instrumentman, and he was appointed assistant engineer in 1897. He was promoted to division roadmaster at the age of 26, in 1898, and served in that capacity for nine years, at La Salle, Ill., Louisville, Ky., Clinton, Ill., and Chicago. In 1907 he was promoted to assistant chief engineer maintenance of way for the entire system.

In 1910, at his own request, Mr. Downs was transferred from the engineering to the operating department and appointed division superintendent at Fort Dodge, Iowa, later serving in the same capacity at Dubuque, Iowa, and Louisville, Ky. In 1914 he was promoted to general superintendent of the Southern lines with headquarters at New Orleans and in 1916 was transferred to the Northern lines with headquarters at Chicago; in 1919 he was appointed assistant general manager.

Mr. Downs was made vice-president and general manager of the Illinois Central-owned Central of Georgia in 1920 and was elected president of that line and of the Ocean Steamship Company in 1924. He returned to the Illinois Central as president in 1926, succeeding the late Charles H. Markham, and, on December 14, 1938, after 12 years at the helm, he was elected chairman of the board.

Mr. Downs was a charter member and past president of the American Railway Engineering Association and a director of the Continental Illinois National Bank and Trust Company of Chicago, as well as a trustee of Armour Institute of Technology at Chicago. Among his many honors was that of membership in the Sovereign Military Order of the Knights of Malta; an honorary degree of doctor of engineering from his alma mater, Purdue University, and an honorary degree as doctor of laws from Centenary College of Louisiana.

"Larry" Downs himself, his rise, when it occurred, to one of the highest positions in the railroad world, and his successful work in that position, were highly typical of the modern railroad industry. He was fond of saying that he was "just an average man," and, as he meant it, the statement was true. He had none of the kind of genius for initiative in construction and finance that made Hill and Harriman dominant in their period. But Hill's period and Harriman's period and the period of Mr. Downs and his fellow railway executives, were widely different and therefore demanded widely different qualities; and all his life Mr. Downs demonstrated the very qualities demanded by the period during which it was his lot to be chief executive of a large railroad system.

An outstanding characteristic was his enthusiasm for any task that he undertook. He approached every job with the attitude of liking it and of determination to put his whole self in it. At Purdue University he was a good football player as well as a good student. During his active career he always liked to play cards as a recreation and during his later years was fond of golf; but neither in school nor later was anything ever allowed to interfere in the slightest degree with his work. He usually beat the office boy to the office in the morning; he was so meticulous about everybody being on time to keep an appointment that it was a standing joke among his associates and friends that he always was away ahead of time; and as long as he stayed well he never could be prevailed upon to extend his annual vacation a single day beyond three weeks. If, as he contended, he was no genius, he had the best of all sub-

(*Continued on page 254*)

An Arresting New Treatise on Transportation Economics

Being a review of Kent Healy's "Economics of Transportation" which challenges many long-respected precepts

IN his "The Economics of Transportation in America"* Kent Healy, who is Professor Winthrop Daniels' able associate in transportation at Yale University, has produced an original and challenging book—not by any means the type of routine transportation textbook which is compiled of a re-hash of previous works, brought up-to-date with recent rate and court cases and legislation. For one thing, the author has digested some of the provocative but so far little-utilized reports of the Federal Co-ordinator on various phases of transportation; and he seems to have got around a great deal within the railroad industry itself. The result is an opus with which few railroad people will agree more than, say, about 75 per cent, but which all will find a challenge to many accepted practices of railroad operation and management.

Traffic Depends on Low Rates for Its Existence

Many people seem to look upon traffic, considered as a whole, as something which can be taken for granted, as if it existed spontaneously. No reader will leave this book, though, with this impression. The large volume of traffic in this country arose primarily out of regional specialization in production. This specialization has not occurred primarily because each territory cannot produce the things which it needs, but because *cheap transportation has permitted the concentration of production in the most favorable locations.* Regional specialization can exist only where transportation charges are very low, and anything which tends to make such charges higher than they might otherwise be, offsets to some extent the economies of specialization and promotes the decentralization of industry and production, and hence dries up traffic—and such drying-up is proceeding at an alarming rate in this country at the present time. The only way American producers can be persuaded to use ton-miles in place of localized factory sites and installations is to make ton-miles cheaper than any of the many substitutes for ton-miles—and this means holding down the cost of transportation to the lowest possible figure.

Railroads, says Mr. Healy, have in recent years espoused the "buy local" cause. "While in an individual instance this may seem to increase the number of industries on a particular line, if all railroads were to do it, it would be inviting decentralization of industry and would reduce specialization-demand transportation."

The author believes that transportation theorists have unduly emphasized the "overhead costs" of railroad service. As a matter of fact, he points out, the statistics show that a good many costs (maintenance, for one thing) are made to vary closely with the volume of traffic. To the extent that this thesis can be supported, so-called "out-of-pocket rates" would lose their theoretical justification. Also the "differential route" would become a device of questionable soundness. One of the Co-ordinator's reports is cited to show that 11 per cent of all railroad movement is circuitous, thus making railroad service as a whole more costly than it otherwise would be—hence limiting the extent to which it is possible for regional specialization in industry to continue, thereby creating traffic for the carriers.

Heavy-Density Carriers Not Necessarily Economical?

If it is good business to allow a circuitous route to attract traffic by differential rates, on the theory that this traffic will not increase the carrier's expenses in proportion to the revenue, then, Mr. Healy argues, the direct-haul carrier could also bid for the same traffic on the same basis. Hauling traffic over greater distances "does increase the costs to the railroads as a whole and so differential rates may tend to decrease their profitableness as a whole." Contrary to accepted belief, the author contends that "out-of-pocket" costs are likely in the long run to be about the same as "over all" costs.

Attention is drawn to the widely varying costs of railroad handling of traffic, the variations being largely due to the extent to which the traffic moves in heavy trains or in light way-freights. Unit costs of a heavy coal train, Mr. Healy points out, are only one-fortieth as much as those obtaining in the least favorable branch line conditions. High densities of traffic in big terminals do not bring proportionate economies, and high densities "out on the line" do not bring proportionate savings in train-mile expenses, provided the line with the comparatively light density is able to handle its traffic in economical trainloads. That is to say, the train-mile cost of a line with 10 trains a day is not likely to be any higher than that of a line handling 40 trains a day. This is a pronouncement which deserves most careful scrutiny; because, obviously, if the figures will bear it out, then the principal argument for large-scale consolidation might lose much of its force.

Are actual maintenance *cost* and maintenance *expenditures* equivalent? Expenditures, obviously, fluctuate with traffic, but it is taken for granted that much of the reduction in times of poor business represents retrenchment rather than true economy—the costs being assumed to continue at almost the same level even when expenditures have been sharply reduced. Here is one question alone which this author raises, which calls for a lot of further serious inquiry, as much by those who are inclined to agree with him as by those who emphatically do not.

Rate theory henceforth must pay more attention to competition, and hence to competitive costs, than to former theories of monopoly pricing—so Mr. Healy concludes. One of the best ways, he contends, to achieve "co-ordination" of rail and truck operations is to have their competitive prices fixed by their competitive costs and then let the differences in rates and service attract the shippers to one or the other of the competing types of transportation. Mr. Healy is critical of the slowness

* Published by Ronald Press, New York.

of the railways in revising their rates to meet modern competitive conditions. He is inclined to suspect that the rate associations may be "one of the forces delaying the adjustments necessary."

High class rates, he believes, "have driven traffic to the trucks and even fostered truck operations where they are not justified." There is, moreover, ample precedent for submerging class distinctions when competitive conditions arise—that is, back in the days before regulation when the railroads were competing with each other, on several occasions, first and fifth class rates between New York and Chicago were the same.

The Author Is Strongly Pro-Truck

The author is no friend of regulation of truck and waterway transportation. He is particularly fearful of the regulatory authorities' "relating truck rates closely to those of their competitors, whose cost structure is entirely different." That, it seems to this reviewer, is a reasonable misgiving and one which true friends of regulation should be at great pains to dissipate. But the author seems to entertain fears also lest the railroads and the for-hire trucks collaborate to bring about the regulation of private trucks. On the other hand, he freely concedes the desirability of shippers' knowing what each others' transportation costs are. It is pointed out that one of the early traffic pools "was formed on the initiative of shippers so they would know what their transportation costs were going to be and so that they would be assured that each shipper was being treated on the same basis by the railroads." But how can shippers know what their transportation costs are going to be today, or what assurance have they that they will receive equal treatment from carriers, if any important segment of the transportation industry remains unregulated?

There is no consistency in defending regulation of railway rates, for one reason, so that discrimination between shippers may be avoided and so that shippers may know "where they stand"—if carriers which perform one-third of the nation's transport job are to escape such regulation. To be sure, Mr. Healy maintains that discrimination can be practiced by carriers only "where there is some degree of monopoly and therefore an opportunity to charge what the traffic will bear rather than the cost of hauling it." But this is one of those theoretical generalizations which afford little protection to the specific shipper who finds his competitor enjoying a "back haul" rate, denied to him despite all the hypothetical competition in the trucking business. Indeed, Mr. Healy himself admits in another place that "joint supply of empty return capacity stands out as a proportionately more important force in rate-making" for the trucks than for the railroads. Such empty return capacity offers an opportunity for the trucks to discriminate between their customers, and offers the same theoretical justification for regulating truck rates as any which can be cited for regulating those of the railroads. If the trucks are not transportation monopolies and, hence, cannot justifiably be regulated, then neither are the railroads monopolies and they too should be freed from regulation.

Money Spent for Competitive Propaganda

The author is pretty caustic about the railroads' attitude toward their competitors. The railroads, he says, "must have spent millions of dollars worth of effort and money" in securing truck legislation. Anyhow, the weight of informed and disinterested opinion is overwhelmingly in favor of truck regulation, in the public interest. Viewed in that light, such effort as the railroads have put forth to bring about truck regulation has been socially advantageous, and the railroad effort is not a cause for censure but rather for praise. That individual railroad men have worked hard and conscientiously toward such a goal no one will deny, but that railroads as such have spent sums in this direction of a size commensurate with the importance of the problem to them is not true—especially when it is compared with the huge propaganda campaigns of the truck manufacturers and their affiliates.

The author is apparently willing to concede to the truck interests every argument—however fantastic—which they have made in their own behalf, including even so-called tax "reciprocity." "The assumption underlying reciprocity," Mr. Healy declares, "is that the value of the highway use by foreign trucks for which there is no contribution is about balanced by the reciprocal use permitted to the trucks of a given state outside its boundaries." A learned scientist ought to check his facts before pronouncing such as important dictum, and the facts will not support this one, as several state highway financial authorities have recently made clear. Also, the author fears that should this sort of "restriction" (that is, taxing out-of-state trucks) be widely imposed, it will be "a serious threat to the free intercourse between the states which is so fundamental to the success of the Union of the States."

Would Mr. Healy care to contend that the "success of the Union of the States" was in grave jeopardy 15 years ago? Yet at that time there were fewer states granting license "reciprocity" than there are today. Were "reciprocity" in truck taxation removed today, such removal would not constitute a new "imposition" on the trucks, but only a return to conditions under which no one questioned the existence of "free intercourse between the states." Verily, Herr Hitler is right—if you prevaricate on the grand scale and tell the tall story often enough (as the truck gentry have this "reciprocity" fable) eventually even the experts will believe it.

Two Contestants, Two Sets of Rules

On the subject of highway finance, also, the author tends to track along with the most extreme protagonists of highway transportation. He doesn't believe highways should be charged with interest costs except for debt actually incurred. It is difficult to understand how a competent economic theorist could arrive at such a strange conclusion. All along Mr. Healy quite soundly asks that rates of competitive agencies of transportation be based upon their comparative costs—in order that traffic may be divided among them on a basis of their comparative economy. But in his contention relative to freeing highways from charges for invested capital, he is, in effect, urging that entirely different types of bookkeeping be used for the two rival transport agencies. While asking that rates be based on comparative costs, he at the same time seeks to make it impossible to determine what truly comparative costs actually are. Having thus given the truck protagonists everything but the kitchen stove, Mr. Healy finally moderates his partisan generosity somewhat to observe that "the trucking industry and its employees have both provided particularly fertile ground for racketeering activities, in the large cities." Truck employees "and their employers are, to a large extent, a rough and ready class who take naturally to violence."

His treatment of truck transportation, on the whole, is the least analytical part of the book—and in no wise demonstrating the critical acumen displayed throughout most of the rest of his discussion.

"It might be said that the most harmful single thing which has

resulted from regulation has been the growth of an attitude among many managements and financiers that their properties are somehow due this 'fair return,' regardless of almost anything that may happen, and that if they do not get it a gross injustice has been done them. In turn this leads to a failure on their part to do the constructive thing for themselves by way of 'sharpening their pencils' and improving their costs, rates, and services to meet new conditions. Any aggressive business in other fields expects to do that, rather than to fall back on the fact that its plant represents a certain investment value and should therefore automatically earn certain profits."

In the above paragraph the author epitomizes his observations on government regulation of the railroads. He dismisses the contention that regulation has held down railroad earnings by citing figures as to earnings before and after effective regulation and goes on to say that "regulation did not prevent the railroads from obtaining substantially as good a return on their investment as they had ever had in years of good business before regulation."

Regulation Not Responsible for Inadequate Return

Another indirect evil effect of regulation has been "confusing the issue of where responsibility lies and who must lead toward the improvements for the future." There is said to be a "tendency for managements to use the Commission as somebody to blame for all that has gone wrong or all which they do that is distasteful." He proceeds to warn the railroads against expecting too much in the way of financial help from regulation, as follows:

"So long as the people and business men of a country are free to do as they please with their money, no regulatory body can prescribe a price for transportation and then enforce the purchase of the amount of that transportation which will necessarily assure a certain income and return. As we have seen there are certain fundamental demands for transportation which vary among other things with the price and nature of transportation service. Passengers are free either to use other means of transportation than the railroads or to use their money for altogether different purposes if they think railroad fares are too high or the service not attractive enough."

As for the details of regulatory policy, Mr. Healy quite evidently is not convinced that these have proved the handicap to the carriers which is often alleged. He says:

"Every year the railroads publish about 100,000 new rate publications or tariffs to make changes in their prices, and in the normal year probably 95 per cent of the new prices go into effect without positive action being taken with respect to them. . . . It requires more than ordinary care not to overvalue the importance of actions, the records of which are in print and easily available, and undervalue those not so readily accessible."

On the other hand, the author is rather critical of some of the restrictions placed around railroad use of trucks which "may well be found to inhibit the free determination of the most economical and serviceable form of transportation in borderline cases." But the burden of price-making, in the author's opinion, has not been taken from the railroads by regulation.

For instance, he says:

"The possibility of the acceptance by the Commission of many reasonable and constructive changes [i. e., in class rates] upon which the carriers may agree seems to be a real one, and the prerogative of railroad management to initiate them seems still to exist. The difficulty is that the railroads can seldom agree among themselves upon what changes should be made, so that when the whole problem of further class rate revision because of new conditions becomes urgent enough to demand action, it is more than likely to be turned over to the Commission by default of the principals."

And again:

"The thing that stands out in most of these requests for general [rate] increases [i. e., during the depression] is the failure of managements to use what is called 'business sense' in their attempts to increase revenue. To ask for uniform increases regardless of commodity or length of haul seems to imply a lack of realization that there were competitors to whom shippers could turn, as well as the possibility of substituting commodities requiring less rail transportation. . . . One cannot help but wonder if they felt that the whole problem was too much for them and that such a request would 'pass the buck' to the Commission, so that the almost sure failure could be blamed on somebody other than themselves."

Too Much Routine in the Traffic Man's Job

In general the author approves of the principle of "trainload" rates and of "volume" class rates and the fourth section, while he is critical of the tendency of the railroads to make "piecemeal reductions to meet each threat of competition, without erecting a background of general knowledge concerning the basic nature of competition, in the light of which a proposed response to the threat [i.e., of a shipper to divert his traffic] might be reviewed."

"The fact that the traffic man's life is filled with such a multitude of these individual rate situations makes it all the more difficult, due to lack of spare time, for him to evaluate the whole situation and thereby develop a constructive general policy to be applied uniformly in respect to each of the individual problems."

Of the proposed regulation of water carriers, the author says: "All this fails to get to the root of the uneconomic position of many of the river and canal operations, which arises primarily out of unjustified government expenditures for improvements and not out of the operation after the improvements have been made."

In his historical survey of the development of regulation, the author leaves implicit the two opposing theories —i. e., regulation of the commission type and that by encouraging competition—which are fundamentaly opposed to each other. The persistence and encouragement of competition thwarts the effectiveness of regulated monopoly, while the acceptance of *some* elements of monopoly constantly operates to prevent the forces of competition from exercising their full beneficial effects.

Fares As Low in '50's as They Are Today

On the subject of passenger transportation, Mr. Healy belongs to the low-fare school, to wit:

"The elasticity in the demand for lower-class passenger transportation in populous parts of the country seems to be very great, from the slight evidence available. It has been rumored, for instance, that a temporary increase ranging from 33 per cent to 100 per cent in some of the very low holiday excursion rates for relatively short hauls decreased the volume of traffic by 50 per cent and the revenue by 30 per cent."

"Since the average family income is probably below $2,000, it seems clear that if the railroads are really going to tap the potential mass market they will have to make rates much lower than they generally do now, so that the expense of a trip by the family, consisting perhaps of two adults and two or three children, will be within the reach of meager pocketbooks. . . . Coach trains have been consistently filled with from 1,000 to 1,500 passengers under these circumstances [i. e., rates of ½ cent a mile]. The more general application of such fares with good service along main line routes would seem to open almost unlimited possibilities for developing increased railroad business at a substantial profit over full costs."

"The previous failure on the part of the railroads to reduce coach rates would seem to have allowed a competitor quoting lower rates to become well established, making it difficult for the railroads to regain this traffic. The rather absurd part of

this situation is that the railroads, for long hauls on their main lines, can unquestionably carry coach passengers for less total cost than the buses. The carrying of coach passengers in quantity entails the lowest costs of any form of passenger transportation."

"Fares have not tended to decline as much as freight rates have over the years. The fare level on many lines in the 1850's was as low as it is now . . . One of the reasons for this is the apparent impossibility of decreasing costs because, until just recently, weights per passenger have been constantly increasing and because passenger train loading as a whole has not improved in efficiency as much as freight train loading."

The author believes that "the position of the railroads in respect to the higher classes of passenger traffic seems likely to become more unsatisfactory as times goes on." He ascribes this danger to the growing attractiveness of air travel in the face of relatively high costs of the more luxurious accommodations on the railroads and the relatively few passengers per car achieved in such services. Developments since the last page of the author's manuscript was typed may justify some modification in this pessimistic view—though, it must be admitted that, despite the great strides the railways and the progressive equipment manufacturers are currently making, the aviation industry is not standing still either.

Some important contrasts between the railroads and their competitors are noted—for one thing, the triumph of the "low price, high volume" price policy in the automotive field over the surer but smaller profits on a small volume with high prices.

In air transportation, he points out, "it is noticeable that there has been no marked tendency for price per seat or per ton of gross weight to decrease." This would seem to forestall the air lines from effecting large economies in their handling of heavy-volume traffic. On the other hand, it would indicate an ability of this competitor to give all the economies it can attain on small as well as large planes. If this be true, the air lines might prove to be a formidable competitor for traffic of medium-sized cities, now largely omitted from air line schedules.

Important Differences Among Different Forms of Transport

The rapidity with which motor and air equipment inventory is "turned over" is noted by the author, who calls attention to the fact that: "the average railroad's gross revenue in a year never exceeds one-quarter of the cost of its road and equipment, whereas the automobile manufacturer's annual sales amount to more than his investment in plant and machinery. With such a small investment compared to sales, the fear that rapid and major improvements may make old equipment valueless does not haunt the automobile manufacturer to the extent that it does the railroad company."

He mentions also the requirement for uniformity and interchangeability in railroad equipment which does not exist for the automotive manufacturer. When new brakes were developed for automobiles, they could be applied immediately to new models—but new brakes on the railroads had to work with existing brakes, constituting a technical problem of vastly greater difficulty.

But it is not only such technical factors which make the railroads' job a hard one in a competitive era:

"The railroad company has a large proportion of its executives and supervisors occupied in controlling the expenditure of money. Their attention is thus necessarily directed toward emphasizing developmental work which looks toward lowered expense. The direct sales force of the railroad and the amount of money spent on selling its services is small in comparison with its gross sales. The automobile industry as a whole, on the other hand, employs almost equal numbers in selling and manufacturing personnel. . . . The economic force of a group of 370,000 men who know that their livelihood depends on selling motor vehicles is tremendous."

The author has plenty to say on the subject of railroad management. He does not believe that most managers are adequately trained. The "informal school of experience" is said to tend to overemphasize the narrow and detailed processes and "to make day-by-day problems loom larger than basic principles and the long time view." Who would deny that there is some truth to this observation? How many railroad managers, after they have given time to the multitude of routine chores which they have to perform, still have frequently the time and the energy left to take a prolonged 20-year-look at the railroad industry as a whole? The author goes on further to criticize the "school of experience" as the exclusive training ground of management on the further allegation that this "school" is

". . . . likely to stifle imagination and progressiveness, because in the long years of that training the emphasis is on being a good and willing soldier and not on reaching out for new ideas. The intangible influence of a great body of men going along in established ways may easily overpower initiative. The experience of this environment is not without its value, but it is only the rare man who can survive it for 30 or 40 years more or less and then, upon being made a chief executive, become a forceful, imaginative, and understanding leader. The recently developed transportation organizations do not have this problem because their leaders have not had to go through such a mill, but for the older organizations it may be rated as possibly their most serious single problem at the present time."

Neither stockholders nor directors, as a rule, it is contended, exercise any powerful influence upon managers and, if managers and directors are actually going to protect the interest of the stockholders, it is largely "the force of tradition" and moral obligation which causes them to do so. As an example of the power of these customary forces the author cites the Pennsylvania Railroad where "tradition has proved sufficient to make the directors insist on cutting costs so as to maintain dividends in spite of seemingly insurmountable obstacles of reduced traffic and wage rate increases. At the other extreme it is possible to find railroads where this tradition is so weak that a plan of reorganization proposed by the directors has completely wiped out the very stockholders they are supposed to represent."

But if policies of management are subject to criticism by this sharp-eyed observer, those of organized labor fare no better. He recites the historical background for the hours-or-miles method of paying train and engine crews and the working rules of these services, which absolves the labor organizations from any imputation of original sin in instigating these unfortunate institutions. These conditions arose out of a period when railroad employees were subjected "to long and uncertain hours, detention away from home, personal discrimination in wages and tasks, pressure toward reduction in wages, and great insecurity of employment and life." What a change this represented from the earlier and healthier days of the railroads when on one railroad each employee was considered important enough to have his annual wage recorded in the company's annual report, and when, on this road "the annual earnings of $720 for the enginemen were only $1,280 below the president's salary!"

Present Labor Restrictions Destroy Traffic and Jobs

But, granting that the conditions out of which present labor practices have arisen were bad, the conditions now existing are not favorable either—not even to labor. Seniority rules in train and engine service worked out during the depression to favor the "old heads" at the expense of junior employees.

"The increasing wage rates and the rising labor costs per unit

of output, in certain situations such as branch line operation, have been a factor in forcing the abandonment of some railroad services which could not be sold at the price which those increases demanded. In the same way, the tendency toward the standardization of wage rates throughout the country has made it difficult to produce a railroad transportation service which could be supported in some of the poorer sections. Furthermore, increasing wage rates have been an incentive to adopt labor-saving capital improvements as much as possible. . . . The old policy of getting everything you can will give diminishing returns from now on and it is to be hoped that union officers will have the foresight and courage to act accordingly.

The general comment on the train and engine service wage structure is that its extreme complexity of detail appears to have been "a cause for undue bickering and bitterness"; that many of the detailed wage provisions "have little relationship to the price that can be charged for the service rendered under them. While these items may appear to add an increment to wages . . . that increment is not infrequently the cause of a loss of business . . . reflected in a loss in total wages as well;" and, lastly, that the tradition of complexity is imbedded in the railroad industry because it reflects the "hard-earned advantages of one job as against another." The author, in other words, does not believe that railway labor will stand for the New Testament wage plan of paying the late-hired workers the same stipend as those who began their labors early.

Government Ownership a Defeatist's Device

But, many and complex as the difficulties of the railroads are, Mr. Healy does not see government ownership as the cure for them. Rather such an expedient would be merely an attempt to avoid facing realities and correcting conditions which cry out for correction. Government ownership is the loophole of "defeatists who . . . look back to the old days of relatively free enterprise and limited competition as the only environment under which existing organizations of railroads can continue." Government ownership, in other words, is simply a device by which intrenched interests and institutions can continue to be supported in the manner to which they have become accustomed after their economic usefulness has ceased to justify such support.

Government ownership, in the author's view, is "contrary to many of the traditional ideals of American life" and as putting an end to "relatively unrestricted technical progress."

* * *

This long review does no more than touch some of the more important high spots of Mr. Healy's book. It is not by any means solely a railroad work, but covers other forms of transportation as well—conveying much information about their rivals which it is convenient for railroaders to know. Some more thoughtful railroad men have long been saying that one thing this industry greatly needs is a general up-to-date review of the principles upon which it operates, on the encyclopaedic plan of Wellington's famous "Economic Theory of Railroad Location." Mr. Healy's book scarcely fills that large and difficult prescription, but it takes several firm and hopeful steps in that direction. There are few railroaders who would not improve their professional competence by reading it, and by testing the validity of their favorite concepts of the nature of the railroad industry and its problems against the buzz-saw of the author's criticisms. Certainly the industry might benefit if a considerable number of its policy-molding personnel would absorb and act in the light of the Healy diagnosis, whether they accept many of his dicta or not.

Union Pacific Tenders Embody Many Improved Features

(*Continued from page 248*)

Union Pacific and of the General Steel Castings Corporation, developed a Simplex unit-cylinder clasp-type brake application for the lead truck employing two brake cylinders, one mounted on each side of the truck frame.

For the 10-wheel fixed group, clasp brakes were likewise used, each pair of wheels being braked by one brake cylinder suspended from the underside of the tender bed. All brake-rigging pins are fitted with elastic stop nuts and anti-rattling devices where practical. Two single brake shoes 15 in. long are applied to each wheel, reducing brake-shoe pressure per square inch. Large bearings with soft grease lubrication are utilized throughout.

The tender-bed casting has large openings opposite the semi-elliptic springs, equalizer pins and foundation brake parts, which facilitate inspection and replacement of these parts, including the wheels.

This new type of construction made possible the elimination of a number of parts, thus reducing the total weight approximately 15,000 lb. below that of a conventional tender of equal capacity. The light weight of each of these tenders, as constructed, is 160,400 lb., and the loaded weight, 406,500 lb.

Tenders of this new design were built by the American Locomotive Company for service behind the 15 new 4-8-4 type locomotives, delivered to the Union Pacific during August and September, 1939. Up to May 1, 1940, these locomotives have accumulated 1,866,786 miles and, during this period, the maintenance has been exceptionally low on both the locomotives and the tenders. The riding qualities are definitely better than with conventional tenders having two swivel trucks. Mileage between turning of wheel treads has been approximately double.

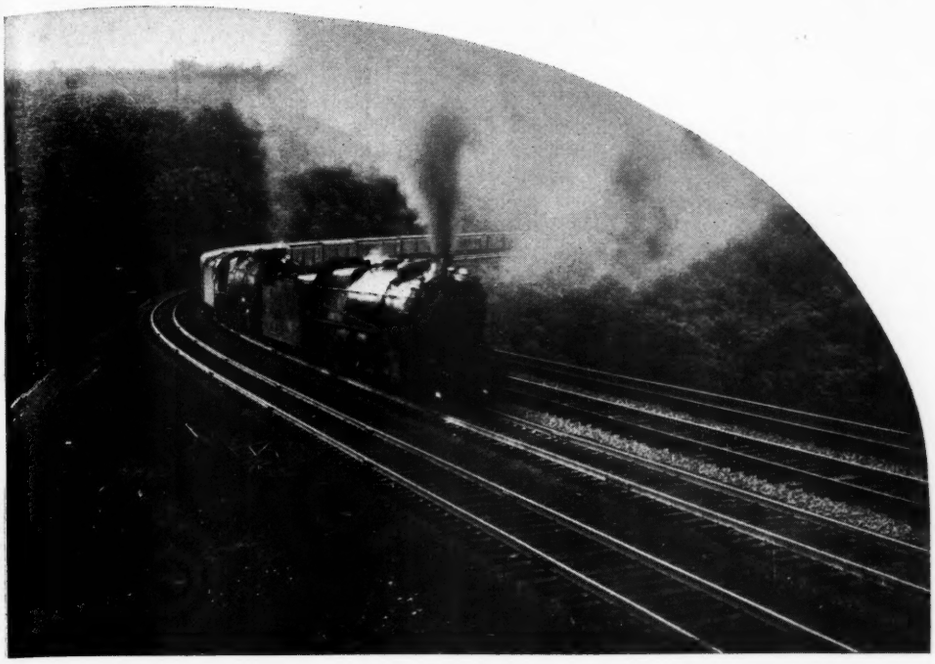
Present indications are that all requirements set up in the development of this new type of tender on the Union Pacific are being obtained in actual service.

L. A. Downs Passes On

(*Continued from page 249*)

stitutes for it, unlimited loyalty to his job and inclination and capacity for constant, thorough study of and application to it. In consequence, he was a rare combination of hard worker, good engineer and maintenance man, good operating man and good executive and administrator; and that was just the combination he needed to enable him to do the exact kinds of work required under his administration to save the Illinois Central system from bankruptcy.

Any sketch of "Larry" Downs would be very inadequate if it did not emphasize that he was a very friendly man. He was, in truth, the very soul of simplicity, kindliness and loyalty in his relations with his family, his friends and his business associates and subordinates. Nothing was more illustrative of him than the fact that in private he always had one favorite boast, viz., that his railroad had the best official organization of any railroad system in the country; after making which boast he would start with "Jack" Beven, who succeeded him as president of the Illinois Central and call the roll, telling as he went along why each of his men was better than anybody holding a corresponding position on any other railroad. This loyalty to his subordinates which he always showed caused a corresponding feeling in return, and was largely responsible for the team-work he secured.



Dynamometer Car Tests Conducted by A. R. E. A., Showed That Rail and Flange Lubricators Will Reduce Curve Resistance Approximately 50 Per Cent

Reducing Curve Resistance With Rail Lubrication*

Dynamometer-car tests conducted by A. R. E. A. committee indicate that tonnage ratings can be increased appreciably

THE application of oil or grease, either by hand or by means of mechanical devices, to the gage side of the high rail of curves or to the wheel flanges has been practiced by both steam and electric railroads for a number of years. The purpose of the lubrication has been to reduce the abrasion on the head of the rail as well as on the flanges of the wheels. On electric car lines the sharp curves in subways and at street corners are often lubricated to reduce the screeching noise.

It is logical to expect that any reduction in the abrasive action on the rail and the wheel flanges that occurs while equipment is passing through curves will be reflected in reduced train resistance in the same territory; hence this committee was given the assignment to investigate the effects of rail lubricators on train operation.

After being informed early in 1939 that the Denver & Salt Lake was planning to install 14 mechanical lubricators between Utah Junction, Colo., and the east portal of the Moffat tunnel, the committee made arrangements to make dynamometer-car tests in this territory before and after the rail was lubricated. Through these tests the committee has endeavored to measure and determine the extent of the reduction in train resistance on curves that is realized as a result of lubrication, and its effect on train operation.

In the 45.63 miles of track between Utah Junction and the east portal of the Moffat tunnel there are 112,809 ft. of track with an average curvature of 6.1375 deg. For the greater part of the distance the grade is two per cent, compensated for curvature at the rate of 0.035 per cent per degree of curvature. There is a difference in elevation between Mile Post 5 and the Moffat tunnel of approximately 3,775 ft.

A train that was representative of those generally handled over this territory was made up and held intact for all the tests. This train consisted of the dynamometer car, 4 loads of coal, 25 gondola cars and the caboose. In all of the tests D. & S. L. locomotive No. 203 was used, the auxiliary water car being considered a part of the locomotive and placed ahead of the dynamometer car. The total weight of the cars and the caboose was 898.6 tons, and that of the locomotive and water car was 377 tons. Although this was not a tonnage train, the committee was advised that it represented all that could safely be handled between Utah Junction and Phippsburg, a distance of 168 miles, within the 16-hr. limit.

Three test runs were made after the lubricators were installed but before any grease had been applied to the rail. The 14 lubricators were then charged with grease and after they had been in operation for 13 days, during which time approximately 200 trains passed through them, three more test runs were made. A continuous dynamometer record was made of the drawbar pull (train resistance) and the speed of the train during each of the six test runs, and from the records tabulations were made at about 150 mile-post locations on each run.

The resistance of a train on level tangent track, often

* Abstracted from a report presented at the last convention of the American Railway Engineering Association by a subcommittee of the Committee on Economics of Railway Location and Operation of which J. A. Parant, assistant to chief engineer, Boston & Maine, was chairman.

called rolling resistance, varies with the speed. Hence, if the speed on two runs is not identical, direct comparisons of the drawbar-pull data cannot be made. However, the resistance on level tangent track is a variable that can be eliminated by comparing the virtual grades. The virtual grade resistance includes the effect of the actual grade, acceleration or deceleration, momentum, curves and the wind. It is representative of the difference between the drawbar pull, or total resistance, and the train resistance on level tangent track at whatever speed the train is travelling. The resistance on level tangent track has been determined by elaborate tests conducted by the University of Illinois. The resistance of the test train was obtained by determining the resistance of each car in the train and then, from the total figure for the train, finding the average resistance per ton on level tangent track.

There were 13 curves in the test territory that were as long as, or longer than, the test train. Five of these curves were located at points where slow orders, stops or meeting points precluded an accurate determination of curve resistance. Five more curves were located at points where changes in grade or reverse curves resulted in such changes in speed that an accurate determination of the momentum grade could not be made. (Because of the light tonnage of this test train and the severe grades of the line, acceleration and deceleration naturally occurred in very short distances). There remained, therefore, three curves on which the determination of curve resistance could be made.

Curve Resistance

The average curve resistance on these three curves for the three test runs that were made before the lubricators were placed in service was equivalent to a grade of 0.0276 per cent per degree of curve, and the maximum for any one test was 0.0395 per cent per degree of curve. After the lubricators were placed in operation, the average resistance on the same curves was equivalent to a grade of 0.0137 per cent per degree of curve, and the maximum for any one test was 0.0211 per cent. Therefore, it can be stated that the tests indicate that rail and flange lubricators, when properly located and functioning satisfactorily, will reduce curve resistance approximately 50 per cent. In the section of track from Utah Junction to the east portal of the Moffat tunnel, the elevation lost by curve resistance before and after lubrication is as follows:

	100 ft. of Curvature	Average Degree of Curve	Curve Resistance per Degree (Per Cent Grade)	Elevation Lost in Feet
Before lubrication	1,128.09	6.1375	0.0276	191
After lubrication	1,128.09	6.1375	0.0137	95
Reduction				96

It will be noted that the lubricators saved the equivalent of 96 ft. of elevation in the 45.63 miles, or reduced the operating virtual grade 0.04 per cent. An effort was made in all six tests to keep the speed as nearly the same as possible. However, if the speed had been allowed to increase as the resistance decreased, there would have been a further reduction in the virtual grade due to the momentum effect of this additional speed. On the basis of these tests it is apparent that, when developing new location and grade-revision studies in the future, consideration should be given to the effect of rail lubricators in reducing curve resistance.

For each test run the operating virtual grades were determined at the 150 mile-post locations mentioned previously. This information was plotted on what may be termed virtual-grade charts, separating the tests made before from those made after lubrication of the track was commenced. The averages of each of the series of tests were then plotted.

The average speed was practically identical for both series of tests. Without lubrication, the average virtual grade was 1.59 per cent, while after lubrication it was 1.548 per cent. Therefore, the reduction in the operating virtual grade was 0.042 per cent which, by the way, checks very closely with that computed from the curve-resistance values, especially since the virtual grade charts take into account the effect of taking sidings at three different locations on the average runs. If the speed had been allowed to increase as curve resistance decreased through lubrication, it is safe to state that the additional momentum would have reduced the virtual grade by 0.008 per cent, thereby making the total reduction 0.05 per cent.

Tonnage ratings were set up on the car-factor basis. The total resistance and average resistance per ton for different consists were computed and the pounds of resistance per ton were determined for the average tons per car. The locomotive was rated at 95 per cent of its capacity.

On the D. & S. L. the operating virtual grade is high, and hence the reduction in curve resistance makes a less favorable showing than would be the case on a railroad with a lower grade. However, it is on the heavy-grade railroads that the greatest curvature is generally encountered. The empty-car movement on this railroad is predominantly in the direction of the test and it was found that through lubrication the tonnage can be increased by 2.6 per cent. However, if this same amount of curvature existed on a railroad with a virtual operating grade of 0.8 per cent, the train resistance would be reduced 4.4 per cent for trains of light cars and 5.1 per cent for trains of heavy cars.

Conclusion

Rail and flange lubricators, when located and functioning properly, will effect a reduction in train resistance and result in an increase in tonnage ratings where grades on curves control the train load.

Railroads Move 150,000 for Army Maneuvers

(*Continued from page 245*)

operators. The trains from connecting lines were serviced in the existing coach yards at Western Avenue but to make this possible the servicing of suburban and through trains was transferred to four tracks in the freight yards where a water main and other temporary facilities were provided.

After the trains had been unloaded at the camp, the cars were either returned or stored for the return movement of the troops. The 16 trains returned to Chicago included cars from connecting lines which required them for the movement of the first army and cars that the Milwaukee will loan the Pennsylvania for its Chicago-Elwood movement. In addition to these trains returned to Chicago, the Milwaukee sent two trains to St. Paul for use in the return movement of the Fourth Army. These were assembled at LaCrosse. About 137 cars were stored at Sparta and Tomah.

Supplies which the troops used during the encampment were transported from Chicago on regular freight trains. In addition, 60,000 lb. of bread were handled by express daily from Madison.

House Passes S.2009

WASHINGTON, D. C.

THE House of Representatives, on August 12, by a record vote of 246 to 74 with 110 members not voting, adopted the conference report on S. 2009, the omnibus transportation bill, and sent the measure to the Senate. Senator Wheeler has indicated that he will call the measure up in that body at the earliest possible moment, but due to the extended debate on the Burke-Wadsworth conscription bill, he said that it would be difficult to say definitely when the conference report would be considered.

Following debate on the conference report which was limited to one hour and 20 minutes, Representative Wadsworth, Republican of New York, offered a motion to again recommit the bill with specific instructions to the conferees to include the Miller-Wadsworth amendment, which, as was pointed out in last week's issue, was deleted when a final agreement was reached by all the conferees except Senator White, Republican of Maine, who refused to sign the report. The motion to recommit also included an instruction to delete from the report a section which had not been in the first conference report, but which had been included in both the House and Senate versions to the effect that the Interstate Commerce Commission is given power to authorize rail carriers to acquire interest in or control of water carriers on the Great Lakes, inland or intracoastal waterways as long as they do not operate through the Panama Canal. On a record vote this motion to recommit was defeated 210 to 113 with 107 members not voting.

At the beginning of the debate the strategy of the opposition forces was revealed when Representatives Wadsworth and Bland, Democrat of Virginia, raised two points of order that the conferees had violated the instructions of the House in omitting the Wadsworth amendment and adding the section dealing with railroad control of water carriers not engaged in intercoastal service. Representative Wadsworth contended that by omitting his amendment which the House had specifically instructed them to retain, the conferees had "not only violated their instructions but attempted to subvert the rights of the House itself." Mr. Bland took the position that the conferees "had included in the bill matters that were not contained in the bill previously and were not covered by instructions which were given to the conferees when the matter was before the House."

Chairman Lea of the House interstate and foreign commerce committee, who was in charge of the bill, reminded Mr. Bland and the House that the subject of control of water carriers by railroads was dealt with in both the House and Senate versions of S. 2009, and that all the conferees had done was to clarify the language which was included in those bills. After considerable discussion of the latitude of the powers of conferees, the Speaker ruled that the points of order could not be sustained against the report and that it should be presented to the House for its adoption or rejection. His ruling was based on the precedents of the House which hold that once a conference report has been recommitted, the entire subject matter under discussion is again opened up and the conferees are not solely limited to the instructions with which a bill is recommitted.

Mr. Lea made a short statement in which he reviewed the history of the measure and defended the conference committee's final action. In discussing the Jones amendment, details of which were given in last week's issue, Mr. Lea told the House that he was at liberty to say that the revised form of the amendment "has the approval of Mr. Jones, the author of that amendment, and I am satisfied that it accomplishes in a sound way what Mr. Jones desired to accomplish, that is, to secure equal justice to agricultural and industrial products so far as export rates are concerned."

Discussing the revised Harrington "labor protection" amendment, which was also detailed in last week's issue, Mr. Lea declared, "We believe that it is a very fair and a very liberal provision for labor. We believe that railway labor substantially agrees in that viewpoint. We take nothing from labor by this agreement. We simply write specific provisions that shall be in the order of approval of the Commission, but otherwise we do not tie its hands."

Representative Vorys, Republican of Ohio, wanted to know whether the four-year limitation on the Harrington amendment would have the effect of delaying a consolidation for four years, or whether it meant that if a consolidation were made there would still be a four-year period during which the employee would be paid.

"No," replied Mr. Lea, "this rule does not delay consolidation. It means from the effective date of the order of the commission the benefits are available for four years. The order determines the date, and the protective benefits run four years from that date."

During Mr. Lea's defense of the conferees' action in omitting the Miller-Wadsworth amendment, Conferee Bulwinkle, Democrat of North Carolina, called his attention to the question of whether the prohibition against carriers reducing their rates below the cost of service would apply equally to passenger as well as freight rates.

"Yes," replied Mr. Lea. "Passengers in the United States are carried at a loss of $100,000,000 a year. If the Wadsworth amendment were put into effect the railroads would, theoretically, have to recover that $100,000,000 by higher fares, which they could not do. It would simply mean that rates would be raised and we would have less traffic on railroads and less income."

Other members speaking in favor of the adoption of the conference report included Democratic Representatives Rayburn of Texas, Cole of Maryland, and Crosser of Ohio; and Republican Representatives Wolverton of New Jersey, Van Zandt of Pennsylvania; Halleck of Indiana; and Holmes of Massachusetts; while among those opposing adoption were Democratic Representatives Whittington of Mississippi and Barden of North Carolina; and Republican Representatives Culkin of New York, and Alexander of Minnesota.

Mr. Wadsworth, speaking in defense of his amendment, told the House that he regarded it "as the one hope of the water carriers in this bill. Without it I fear their days are numbered." He also denied that his amendment would set up any arbitrary rate rule.

"The trouble with the report and with this whole bill," said Mr. Bland, in attacking the section on the acquisition of control of water carriers by railroads, "is that the conferees have lived and served so many years in a railroad atmosphere and heard the troubles of the railroads adroitly presented by their special pleaders that they have unconsciously magnified those troubles and attributed them to causes contributing in but small, if any, degree to their plight in the years of depression. The result is that the conferees seek to correct the railroad evils in a manner which will destroy competition whereas the primary source of the railroad difficulties may be found, first, in their own practices and, second, in the strait jacket fixed upon them by the I. C. C."

Mr. Culkin felt that the conferees for whom he had "great personal affection" have "risen to new heights of parliamentary Hitlerism by writing into this report the repeal of the section relating to the acquisition of competing water lines." This amendment now brought in here is a revolutionary step which spells transportation

monopoly and resulting economic disaster to the farmer, consumer, and shipper in industry. The proposition, may I say, comes out of a clear sky and is clothed in deceptive language. On page 69 of the conference report the matter is glossed over with weasel words in a fashion that does no credit to the conferees' willingness to take the House into their confidence."

In addition to the three major changes noted in last week's issue, the conferees also changed the effective date of sections 304 (c), 305 to 308, inclusive, 309 (a) and (f), 313 to 318, inclusive, 320, 321, and 322 of part III—the water carrier part—from October 1, 1940, to January 1, 1941, and extended from January 1, 1942, to April 1, 1942, the time within which the commission may postpone the taking effect of the sections referred to. These changes were made, it was pointed out, because of the delay in obtaining final action on the measure. These provisions relate to rates, tariffs, certificates of public convenience and necessity and permits, accounts, records and reports, allowances to shippers, notices, orders and service of process, enforcement and procedure, unlawful acts and penalties, collection of rates and charges, repeals of provisions of the shipping acts, transfer of Maritime Commission regulatory employees, records, property and appropriations to the commission, and existing orders, rules, tariffs, etc., these to continue in effect until changed by the commission.

The new bill also provides that the suspension power of the commission with respect to initial tariffs filed by water carriers, would not apply to tariffs filed prior to October 1, 1941, relating to traffic as to which the carrier was in bona fide operation on January 1, 1940. The same treatment is accorded to contract schedules. The original conference report provided that the suspension power should not apply to initial tariffs or contracts filed prior to July 1, 1941.

R. R. Traffic Now Less Than 80% of "Potential"

WASHINGTON, D. C.

RAILROADS in 1939 failed by 282,484,000 tons to maintain their 1928 position as carriers of freight originating from production in this country, according to the latest study of "Fluctuations in Railway Freight Traffic Compared with Production," which has just been issued by the Interstate Commerce Commission's Bureau of Statistics. This figure, translated into dollars would mean a monetary loss of $1,275,000,000, the Bureau says. The study, though there are some revisions, is similar in purpose and method to previous ones reviewed in the *Railway Age* of February 11, 1939, page 262, and December 9, 1939, page 888.

In an introductory statement the report says that the result of the present study for 1939 is "to indicate that there was no significant change in the ratio of actual to potential railway traffic in that year as compared with 1938." The report goes on to point out that the freight traffic position of the railways relative to total business has declined over one-fifth since 1928 and that this is in addition to the decline in freight traffic from the general recession in business activity since 1928.

As an example of the sharp drop in railroad tonnage figures, the report presents a tabulation of the revenues from milk traffic which shows that the total fell from $36,670,061 in 1928 to $9,909,253 in 1939, a decline of 73 per cent; while the poundage of milk produced on farms was increasing 13.2 per cent.

The foregoing figures cover all railroads, the Class I carriers having failed last year to maintain their 1928 positions by 252,929,000 tons. The study, like the previous ones, computes indices based on 1928 as 100 of production, potential railway tonnage and actual railway tonnage. The application of the production index for each year to the 1928 railway tonnage gives for each

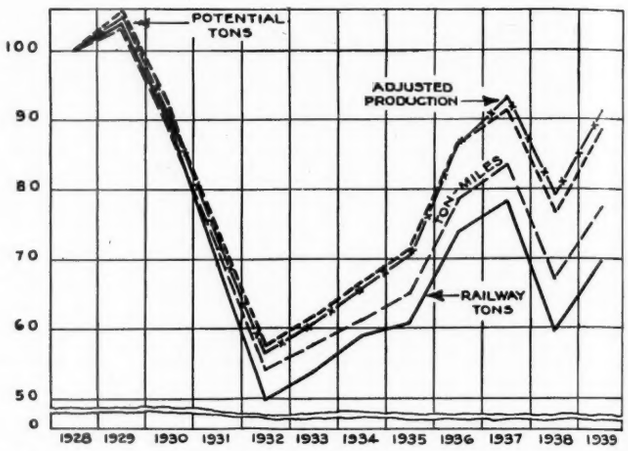


Chart by Bureau of Statistics, I. C. C.

Commodity Production and Railroad Tons and Ton-Miles Compared
(*1928 = 100 Per Cent*)

year what is designated in the tables as "potential railway traffic," i. e., the amount the railroads would have carried each year if they had been maintaining their 1928 position. Against this "potential" tonnage, the actual traffic is set up, and the differences between the two measure the railroad losses. As noted above the composite figures include all railroads while the data by classes of commodities covers only the Class I carriers.

The former data show that the 1939 index of railroad tonnage was 68.9, as compared with the adjusted production index number of 88.9; the railroads carried 50 per cent of the 1928 production, but only 37.8 per cent of 1939's. Meanwhile, the 1939 railway tonnage index number for Class I roads was 69.6; those roads carried 46.8 per cent of the 1928 production and 35.7 per cent of 1939's.

With respect to the products of agriculture, the 1939 production index number was 100.9, the index of Class I railway tonnage 75.8. In 1928 the Class I railways carried 39 per cent of the agricultural production as compared with 29.3 per cent in 1939. The 1939 production index for animals and products was 109.2, the index of railroad tonnage 58.4. Between 1928 and 1939 the proportion of this production hauled by rail dropped from 72.8 per cent to 38.9 per cent.

The 1939 production of products of mines was 86.3 per cent of that in 1928, while the 1939 railway tonnage of such products was 71 per cent of that handled in the base year. In other words the carriers received a haul on 51.2 per cent of the 1928 mineral output, but this figure dropped to 42.1 per cent in 1939. The 1939 production index for products of the forests was 84.2; the index of railway tonnage was 50.3; railways in 1939 hauled 18.4 per cent of the production as compared with 30.8 per cent in the base year.

As against a production index of 98.4, the 1939 index of railway tonnage in the manufactures and miscellaneous group was 74.7. The railroads handled only 32.8 per cent of the production in 1939 as compared with 43.2 per cent in 1928. The 1939 production index of l. c. l. freight (not including freight in forwarder carloads) was 91.2, while the index of railway tonnage was 40.3.

NEWS

Gives R. R. View on Profit Tax

Judge Fletcher urges that quick amortization be allowed for defense equipment

The views of the Association of American Railroads on the subjects of amortization and the excess profits tax which form the basis of the new tax bill now being considered on Capitol Hill were given to the Senate finance committee and the House committee on ways and means on August 13 by R. V. Fletcher, the A. A. R. vice president and general counsel. As a preface to his statement, Mr. Fletcher warned the committees that in adopting plans for the national defense "it is important that the railroads should not be overlooked and that language should not be written into any tax bill which would place them at a disadvantage in comparison with their competitors of which would subject them to treatment less favorable than accorded to industry generally."

Turning to the subject of amortization, Mr. Fletcher told the committees that it is highly important that equipment purchased by the railroads for the purpose of cooperating in carrying out the national defense program should be amortized in the same way as facilities acquired for defense purposes by industrial concerns.

Mr. Fletcher also felt that the statute should be so drawn as to include within the scope of the relief provision equipment which has been purchased by a railroad in order to furnish transportation made necessary by the national defense program. (The proposed statute would allow companies to amortize equipment and facilities which have been acquired after July 10.) He also felt that care should be taken in drafting the bill so as not to exclude equipment which may have been ordered or the construction of which may have begun prior to July 10. He then reminded the committees that the railroads would not contend that ordinary commercial equipment should be so excluded for taxation purposes, but that it was well known that prior to July 10 the railroads were anticipating the present heavy demands due to national defense orders and had ordered extra equipment for that purpose. "Our contention," said Mr. Fletcher, "is that the statute should not be so written as to exclude railroad equipment which may have been contracted for prior to July 10, provided it is completed subsequent thereto."

On the subject of excess profits, Mr. Fletcher thought that a majority of the railroads would select as preferable the invested capital method of determining excess profits rather than the average earnings method. This would be due, he said, to the fact that the test period for average earnings, 1936-37-38-39, was, with the possible exception of 1937, a period of "profound depression for the railroad industry."

Mr. Fletcher also called the committees' attention to the case of those roads now in bankruptcy which will be coming out during the time that the excess profits tax is in force. Some method, he said, would have to be worked out whereby a valuation can be put upon the stock in order to determine the invested capital. He then suggested that language be included in the bill which will provide in effect that in the case of railroads which have been reorganized the capital stock be valued at a sum approved by the Interstate Commerce Commission as the basis of the accounting for the new company. He also requested authority for the railroads to make consolidated returns under the proposed excess profits tax. Such a privilege is now accorded the railroads under the present tax law in certain cases, he pointed out.

Allows Greyhound Lines to Reduce Interest Rate

Division 4 of the Interstate Commerce Commission has authorized the New England Greyhound Lines, Inc.; Central Greyhound Lines, Inc.; and Central Greyhound Lines, Inc. of New York, to reduce the rate of interest on the unpaid balances of their respective serial equipment mortgage notes outstanding to a maximum of 2.5 per cent per year. The total issue of notes aggregated $485,200. At the same time Central Greyhound Lines, Inc. was authorized to continue to assume liability as endorser for certain of the notes aggregating $165,600.

R. E. A. Plans Regional Sales Meetings

The Railway Express Agency, in place of a national sales conference formerly held in Chicago in the fall, will hold three-day conferences of sales forces in each of its four major operating regions. In each region officers, district sales managers, commercial men and agents will confer on ways and means to promote increased use of express service, the conferences to be held under the direction of General Sales Manager K. N. Merritt. Conferences are scheduled as follows: Empire hotel, San Francisco, Cal., August 19-21; Palmer House, Chicago, August 27-29; Pennsylvania hotel, New York, September 10-12; and Atlanta-Biltmore hotel, Atlanta, Ga., September 18-20.

"Barrier" Hoopla Getting Louder

House sub-committee would cut off federal gravy if states tax or limit trucks

James W. Young, director of the Bureau of Foreign and Domestic Commerce, announced on August 12 that the Bureau will conduct an educational and promotional program through its field officers for the removal of interstate trade barriers. In a letter distributed to managers of the Bureau's 31 field offices located in principal commercial centers of the United States, Mr. Young said local business men and business groups affected by trade barrier practices are invited to bring their problems to the Bureau for study.

"The Bureau of Foreign and Domestic Commerce is interested in activities which it may properly carry on with respect to the question of interstate trade barriers," he wrote. "The field offices will further a program directed towards the removal of all laws, rules, regulations and administrative orders which impede or tend to impede the free flow of commerce between the States."

The Bureau's program includes the distribution of information to business and civic organizations on the economic effects of trade barriers and the compilation of trade barrier examples, showing their origins, operation, and effects, he pointed out. The field offices will cooperate with business organizations, such as the Junior Chamber of Commerce, which are now collecting local examples of laws and rulings impeding the free flow of commerce between the States.

The Bureau, he continued, has already undertaken the promotion of a program of economic research on various phases of the trade barrier question among the faculties and graduate students of nearly 100 colleges and universities throughout the country. This is now a part of the Commerce Department's business research program.

Mr. Young said the collection of examples of trade barriers is doubly important since no complete economic data are available on this subject, and the impact of trade barriers on our economy can be estimated best on the basis of reported examples.

Meanwhile, the committee on interstate trade barriers and unemployment of the House of Representatives has made public a report compiled by a subcommittee containing the following recommendations:

"1. That this Congress amend the Fed-

eral Aid for Highways Authorization Act to provide that after the next regular meeting of its legislature no state shall participate in said fund which shall not have adopted the uniform weights, measurements, and specifications for all motor vehicles which shall travel Federal-aid highways, as set up in said Act, and until it shall have enacted the uniform highway code as provided therein. That this Congress provide such uniform law, but provide that a motor vehicle license issued in one state shall be good in all states, subject only to regulations of the Interstate Commerce Commission as applied to vehicles engaged in interstate commerce; and provide that such legislation shall take into account the debt obligation of the several states.

"2. We recommend that this Congress enact legislation to provide that the Interstate Commerce Commission be authorized and directed to institute an investigation into the rates on manufactured products between points in one classification territory and points in another such territory, and into like rates within any of such territories maintained by common carriers, subject to Part I of the Interstate Commerce Act, for the purpose of determining whether said rates are unjust and unreasonable or unlawful in any other respect in and of themselves or in their relation to each other, and to enter such orders as may be appropriate for the removal of any unlawfulness which may be found to exist; Provided, That the commission in its discretion, may confine its investigation to such manufactured products and the rates thereon as shippers thereof may specifically request be included in such investigation. And it is further recommended that Section 3-1 of Part I of the Interstate Commerce Act be amended to include the words, 'region,' 'district,' and 'territory.'

"3. That the Congress enact legislation providing that upon the request of governors of two or more states the Department of State shall offer its services toward assisting such states in arriving at agreements, pacts, or understandings designed to prevent or eliminate threatened or existing barriers between the states."

Any Questions About Railroads? A. A. R. Booklet Has the Answer

The Association of American Railroads has recently issued for free public distribution a 68-page booklet entitled "Quiz on Railroads and Railroading" which contains 400 questions and the answers thereto on practically every query that a layman can make. Dedicated "to the curiosity of the American people" and published, among other reasons, for the relief of railroad men and women who are plied with questions every hour of the day, the booklet contains a number of fine "atmosphere" photographs and a complete detailed index which tracks down items by every conceivable reference and cross-reference.

Questions are classified according to theme. The book opens with general questions like: "What is the maximum grade on main line track?"; "What is the highest altitude reached by a railroad line in the United States?", and "What is the longest railroad curve in the United States?" Then come questions of a more technical nature such as "What is a derail?": "What are the various kinds of railroad yards?" "What is the weight of a steam locomotive?", etc. Further classifications include railway operations, passenger service, head-end traffic, freight service, organization and personnel, investment and capitalization, taxes, railroads as buyers and railway history. In scope, the questions range from the simplest—as "What is a railroad cut?"—to a discussion of the handling of disputes between railroads and their employees. The cover painting is taken from the latest calendar issued by the Committee on Public Relations of the Eastern Railroads.

Truckers Want Their Rates Probed

The American Trucking Associations, Inc., has asked that if the proceedings in Docket No. 28300, Class Rate Investigation; Docket No. 28310, Consolidated Freight Classifications; and MC-C-150, Motor Freight Investigation, are continued, the Interstate Commerce Commission investigate the rates of common carriers by motor vehicle in nature and scope comparable to that involved in these dockets. Also, the A. T. A. asks further that the dockets in 28310 and MC-C-150 be enlarged to include, if not now so construed, all exceptions ratings effecting rail, rail and water, water and motor carrier classification ratings, descriptions, carload minimum weights and volume minimum weights.

Will Investigate Free Storage of Wool and Mohair

The Interstate Commerce Commission, upon its own motion, has instituted an investigation to determine the lawfulness and reasonableness of the rules, regulations and practices of common carriers by railroads and common carriers by motor vehicle concerning the storage of wool and mohair without charge at points of origin in the states of Oregon, Washington, California, Idaho, Montana, Wyoming, and Utah.

The commission has named the following carriers respondents in the case: Union Pacific; Great Northern; Western Pacific; Chicago, Milwaukee, St. Paul & Pacific; Southern Pacific; Northern Pacific; Oregon Trunk; Camas Prairie; Washington, Idaho & Montana; and the Consolidated Freightways, Inc. No time or place for the hearing has been set. The case is docketed as No. 28530.

Seniority Protected During Military Service

The Union Pacific, upon approval of the government and other railroads, will grant leaves for military service without loss of seniority on the following terms:

1. Employees who enlist or who are called to service will be granted leaves of absence for the duration of military service.

2. Employees returning from such leaves will retain their seniority and will, subject to physical fitness, be accorded available positions for which they are qualified.

3. Group insurance protection will be adjusted according to the contract in force at the time of enlistment or call to service.

Greyhound and Teche Lines to Merge

The Greyhound Corporation and Teche Lines, one of its southern affiliated companies, have applied to the Interstate Commerce Commission for authority to merge their properties and operations.

Would Approve M. & O. Motor Acquisition

The Mobile & Ohio Transportation Company of Illinois, a motor carrier affiliate of the Mobile & Ohio, would be authorized to acquire control of the St. Louis, Red Bud & Chester Motorbus & Service Corporation by purchase of the capital stock for $47,500 if the Interstate Commerce Commission adopts a proposed report of Joint Board No. 135, composed of John C. Highberger of Missouri, and George W. Anderson of Illinois. The company to be acquired has operating rights between Chester, Ill., and St. Louis, Mo., over Illinois highway 3, via Ruma, Red Bud, and Waterloo, 62 miles.

Milwaukee Veterans Gather at Chicago

Nearly 3,000 active and retired employees of the Chicago, Milwaukee, St. Paul & Pacific gathered at Chicago on August 14 for the 1940 reunion of the road's Veteran Employees Association. The organization has 9,000 members, all of whom have worked for the road for upwards of 25 years. A brass band of 60 pieces, composed of Milwaukee employees residing in Milwaukee, Wis., played in the Chicago Union Station while delegates arrived and later marched through the city. H. A. Scandrett and George I. Haight, trustees of the Milwaukee, spoke at the banquet. On the following day, the veterans cruised Lake Michigan, putting in at Benton Harbor, Mich., at noon for luncheon and entertainment.

S. P. Employees Publish Weekly Newspaper

The "Railroad Pioneer," a four-page weekly newspaper which is owned and published by railroad employees of the Southern Pacific in Sacramento, Cal., and vicinity, will shortly mark its first year of publication. Incorporated in August, 1939, the initial edition was put out early in September and circulation has now grown to about 3,000. All shareholders are Southern Pacific employees, most of whom are also correspondents for the paper. In addition, for the last six months correspondents from the staff of the Western Pacific have contributed news items. All correspondents volunteer their services without pay.

The paper goes to all points in the immediate vicinity of Sacramento and Roseville and also the San Francisco general office. The paid staff is limited to an editor-manager and an advertising manager. The paper is produced on a contract basis

and is sold for five cents a copy, or one dollar a year.

Chief of its features is a column entitled "Every Word the Truth" which is written by W. C. ("Sparky") Heilbron, labor foreman, Southern Pacific, Roseville, in a columnist's style developed by Kenneth C. Beaton (reputed to be the highest-paid columnist ever in Mr. Hearst's employ) for the San Francisco Examiner. Sparky's column generally devotes itself to railroad news and has attracted the attention of Mr. Beaton, who voluntarily contributed a column which appears in the issue of August 9.

Freight Car Loading

Loading of revenue freight for the week ended August 10 totaled 726,976 cars, the Association of American Railroads announced on August 15. This was an increase of 8,546 cars, or 1.2 per cent, above the preceding week, an increase of 65,953 cars, or 10 per cent, above the corresponding week in 1939, and an increase of 137,408 cars, or 23.3 per cent, above the same week in 1938.

As reported in last week's issue, loading of revenue freight for the week ended August 3 totaled 718,430 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For Week Ended Saturday, August 3

Districts	1940	1939	1938
Eastern	146,226	133,798	114,509
Allegheny	153,964	125,579	104,299
Pocahontas	50,274	48,596	40,270
Southern	97,448	94,212	85,365
Northwestern	120,917	109,995	92,744
Central Western	104,953	100,443	101,734
Southwestern	44,648	43,930	45,141
Total Western Roads	270,518	254,368	239,619
Total All Roads	718,430	656,553	584,062
Commodities			
Grain and grain products	41,357	42,270	51,514
Live stock	9,116	11,158	11,276
Coal	122,752	111,206	90,927
Coke	10,657	6,725	4,487
Forest products	36,610	31,933	28,892
Ore	68,519	44,890	22,998
Merchandise l.c.l.	150,286	154,657	149,245
Miscellaneous	279,133	253,714	224,723
August 3	718,430	656,553	584,062
July 27	718,489	655,531	588,697
July 20	729,897	651,665	580,818
July 13	740,465	669,888	602,445
July 6	636,901	555,152	500,981
Cumulative Total, 31 Weeks	20,450,577	18,452,589	17,087,635

In Canada.—Carloadings for the week ended August 3 were 53,261, compared with 54,655 in the preceding week and 45,320 a year ago, according to the weekly summary of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
August 3, 1940	53,261	22,663
July 27, 1940	54,655	22,963
July 20, 1940	57,125	24,087
August 5, 1939	45,320	18,482
Cumulative Totals for Canada:		
August 3, 1940	1,574,119	758,007
August 5, 1939	1,345,111	631,828
August 6, 1938	1,354,925	632,340

P. R. R. Gives Ideas on L. C. L. Pool in Special Booklet

A large 42-page booklet presenting the views of the Pennsylvania management on compulsory pooling of merchandise traffic has been prepared by the road. Containing the complete testimony of Vice-Presidents J. F. Deasy (operation), and W. S. Franklin (traffic) as presented to the Senate sub-committee on interstate commerce on June 6 and 7, respectively, the booklet also re-prints full-page reproductions of graphs, charts and diagrams in color which supplemented the textual presentation. Summaries of the Pennsylvania view-point appeared in the *Railway Age* of June 15, page 1057.

Inquiry for copies of the booklet may be directed to G. E. Payne, system publicity representative at Broad Street Station building, Philadelphia, Pa.

Oil Anti-Trust Suit Would Divorce Pipe Lines

At the request of the National Defense Advisory Commission the Department of Justice has temporarily postponed the filing of a "comprehensive" civil anti-trust suit against 22 major oil companies and their subsidiaries and affiliated companies, comprising a large part of the oil industry of the United States. This suit, according to a Department of Justice announcement, seeks to force these companies to divest themselves of certain types of properties, such as pipe lines and tankers and marketing facilities, and to disintegrate companies so as to separate transportation and marketing from the production of oil.

The reason given by the Attorney General for temporarily postponing the suit is that the National Defense Advisory Commission wanted some time to make a study of the matter to ascertain its effect on the national defense program.

It is understood that the government will contend, among other things, if the suit is brought and prosecuted, that the ownership of the pipe lines by certain companies constitute a rebate under the terms of the Elkins Act and are, therefore, illegal and should be divorced from the oil companies and operated independently as common carriers.

Would Justify Cancellation of Grain Proportionals

Examiner R. G. Taylor would have the Interstate Commerce Commission find justified the proposed cancellation of the application of reshipping or proportional interstate rail rates on grain, grain products, and grain by-products, in carloads, from Chicago, and Peoria, Ill., St. Louis, Mo., and from other related grain rate-break points, to eastern destinations when that traffic arrives at the rate-break points by boat or barge over the Illinois Waterways on rates not subject to the commission's jurisdiction. After characterizing the proposal as a "clarification" of the railroads' schedules, the examiner recommends that the order of suspension be vacated and the proceeding discontinued.

By schedules filed to become effective October 15, 1939, and later dates, the railroads propose to cancel the application of reshipping or proportional interstate rail rates on grain, grain products and grain by-products in carloads, from Chicago and Peoria, Ill., St. Louis, Mo., and other related grain rate break points, to central, trunk-line, and New England territories, including a portion of eastern Canada, now applied on domestic as well as export traffic, when the traffic arrives at the reshipping or proportional rate point by boat or barge over the Illinois Waterway on rates not subject to the Interstate Commerce Act, and to apply higher local rates in lieu thereof.

Under protests of the Federal Barge Lines, Continental Grain Company, Norris Grain Company, and others, operation of the proposed schedules was suspended until May 15, 1940, and their effective dates have been voluntarily postponed until November 15, 1940.

June Accident Statistics

The Interstate Commerce Commission on August 8 made public its Bureau of Statistics' preliminary summary of steam railway accidents for June and this year's first six months. The tabulation, which is subject to revision, follows:

Item	Month of June 1940	Month of June 1939	6 mos. ended with June 1940	6 mos. ended with June 1939
Number of train accidents	518	420	3,449	2,748
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	244	256	943	1,047
Injured	264	250	923	1,108
Passengers on trains:				
(a) In train accidents*				
Killed	...	...	26	1
Injured	42	45	553	174
(b) In train-service accidents				
Killed	...	1	1	5
Injured	124	143	769	780
Travelers not on trains:				
Killed	...	...	3	3
Injured	53	60	427	402
Employees on duty:				
Killed	31	35	244	237
Injured	1,360	1,362	8,545	7,856
All other nontrespassers:**				
Killed	124	107	964	734
Injured	321	361	2,958	2,547
Total—All classes of persons:				
Killed	399	399	2,181	2,027
Injured	2,164	2,221	14,175	12,867

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former cause damage of more than $150 to railway property.

** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties *for all classes of persons, including both trespassers and nontrespassers,* were as follows:

Persons:				
Killed	112	102	884	680
Injured	214	224	2,181	1,846

Bills Would Give Effect to Bridge Law

Senator Shipstead, Farmer-Laborite of Minnesota, and Representative Alexander, Republican of Minnesota, have offered in the Senate and House S. 4255 and H. R. 10331, companion bills which would modify the project for the extension of the nine-foot channel in the Mississippi River

above St. Anthony Falls, Minneapolis, Minn., by relieving the local interests of the obligation to bear the entire cost of the necessary bridge modifications and authorizing the Secretary of War to require the alteration of the bridges and apportion the cost in accordance with the recently-enacted bridge bill.

Conductors Accuse Porters of Blocking "Make-Work" Bill

President M. S. Warfield of the Brotherhood of Sleeping Car Conductors has sent to members of Congress a report which charges that A. Philip Randolph, president of the Brotherhood of Sleeping Car Porters, broke his promise not to oppose S. 3798, the so-called Pullman conductors' "make-work" bill, and thus blocked its progress through Congress after it had been approved by the Senate interstate commerce committee. Joining Mr. Warfield in signing the report were J. A. Phillips, president of the Order of Railway Conductors and chairman of the Railway Labor Executives Association; B. M. Jewell, president of the Railway Employees' Department, American Federation of Labor; and S. J. Hogan, president of the Marine Engineers' Beneficial Association, who constituted the membership of a special committee of the R. L. E. A. which was appointed to press for enactment of the bill.

As pointed out in the *Railway Age* of June 15, page 1070, action on the bill was withheld after the Senate interstate commerce committee had approved it because of opposition by the Pullman porters, whose jobs would be detrimentally affected in some measure by its passage. It was understood at that time that the porters objected to certain testimony given by the conductors to the effect that they were afraid of corpses and disliked having anything to do with passengers who died while enroute in a Pullman car.

Mr. Warfield, in his report, alleged that Senator Minton, Democrat, of Indiana, and Representative Crosser, Democrat of Ohio, sponsors of similar measures in both houses, had agreed to introduce the bills only with the assurance that Randolph would not oppose them. After remaining silent on the measure for some time, said Mr. Warfield, Randolph decided to break his promise and actively oppose the measure. As a result of the opposition of the porters, Senator Minton has indicated that action on the measure will be withheld until the next session of Congress.

Program for the Roadmasters Convention

The Roadmasters and Maintenance of Way Association will hold its 55th annual convention at the Hotel Stevens, Chicago, on September 10-12, with the following program:

TUESDAY MORNING SESSION

Opening address by C. E. Johnston, chairman, Western Association of Railway Executives, Chicago
Greetings from the American Railway Engineering Association, G. S. Fanning (chief engineer, Erie), President
Greetings from the American Railway Bridge and Building Association, A. E. Bechtelheimer (assistant engineer bridges, C. & N. W.), President
Greetings from the Track Supply Association, R. J. McComb (vice-president, Woodings-Verona Tool Works), President
Address by President G. L. Sitton (chief engineer maintenance of way and structures, Southern, Charlotte, N. C.)
Report of Committee on Slow Orders—Their Use in the Light of Present-Day Operating Conditions; E. L. Banion, chairman (roadmaster, A. T. & S. F., Marceline, Mo.)

AFTERNOON SESSION

Report of Committee on Ditching and Bank Widening—Methods and Equipment Best Suited for this Work; C. Halverson, chairman (division roadmaster, G. N., Grand Forks, N. D.)
Address on The Simplification of Track Work, by C. H. R. Howe, cost engineer, C. & O., Richmond, Va.

TUESDAY EVENING

An Evening with Work Equipment
Address on Making Work Equipment Work, by J. G. Hartley, assistant engineer, Penna., Philadelphia, Pa.
Moving pictures of work equipment in action

WEDNESDAY MORNING SESSION

Report of Committee on Welding—Its Uses in Track Work; R. L. Fox, chairman (roadmaster, Sou., Alexandria, Va.)
Address on It's Results That Count, by A. E. Perlman, engineer maintenance of way, D. & R. G. W., Denver, Colo.
Report of Committee on The Maintenance of Gage—Its Importance under Today's Higher Speeds—Causes and Effects of Irregular Gage—Means of Correcting; W. E. Heimerdinger, Chairman (district maintenance engineer, C. R. I. & P., Des Moines, Iowa)

AFTERNOON SESSION

Report of Committee on Effect of Weight of Rail on Track Maintenance; I. H. Schram, Chairman (engineer maintenance of way, Erie, Jersey City, N. J.)
Address on The Task of Renewing 50,000,000 Ties a Year, by H. R. Clarke, engineer maintenance of way, C. B. & Q., Chicago
Question Box—For the discussion of practical questions on track maintenance submitted from the floor.

WEDNESDAY EVENING

Annual dinner given by Track Supply Association

THURSDAY MORNING SESSION

Report of Committee on Handling Snow and Ice in Terminals and on the Line Organization, Equipment and Methods; P. Chicoine, chairman (roadmaster, Can. Pac., Vaudreuil, Que.)
Closing Business
On Thursday afternoon the members will make an inspection of the track maintenance methods, materials employed and tests under observation on the Chicago terminals of the C. M. St. P. & P.

Army and Navy Do Much Buying Locally

The War and Navy Departments have issued a public statement that current information concerning national defense purchases can best be secured from the field offices which the departments have established throughout the country rather than by writing to Washington, D. C., or by sending representatives to the capital. The Navy Department maintains 27 major field purchasing offices in 23 cities, while the War Department has 46 major field procurement offices in 22 cities.

For the information of manufacturers, the Department of Commerce has issued a 16-page booklet giving information concerning these offices. Partial lists of materials being purchased by various agencies of the War and Navy departments appear therein, together with the special field procurement and purchasing offices which have been established. Of particular interest to railroad supply companies will be those offices set up by the Engineers Corps of the Army which is interested, among other things, in air-brake equipment, railroad cars, air compressors, gasoline and steam engines, electric motors and gasoline and steam locomotives.

Procurement offices have been set up at the following addresses under the title "Army Engineer Procurement District": Chicago, 1117 Post Office building; Mobile, Ala., 212 Wilson building; New York, 39 Whitehall Street; Philadelphia, Second and Chestnut streets; Pittsburgh, Pa., 1012 New Federal building; San Francisco, Cal., 409 Custom House. The Navy department purchases a wide variety of materials through purchasing offices in the following 23 cities: Alameda, Cal.; Anacostia, D. C.; Annapolis, Md.; Boston, Mass.; Charleston, S. C.; Dahlgren, Va.; Great Lakes, Ill.; Indian Head, Md.; Key West, Fla.; Lakehurst, N. J.; New London, Conn.; New York; Newport, R. I.; Norfolk, Va.; Pensacola, Fla.; Philadelphia, Pa.; Portsmouth, N. H.; Portsmouth, Va.; Puget Sound, Wash.; San Francisco, Cal.; San Diego, Cal.; Washington, D. C., and Yorktown, Va.

Negotiations Continuing for Military Equipment

Commenting on published reports that the National Defense Commission and the War Department are preparing to purchase approximately 2,000 railway cars, specially designed for troop transport, a spokesman for the commission stated on August 10 that the negotiations with car builders are still in the preliminary state and that no definite action has been taken to date.

In a radio round-table discussion heard all over the radio networks on August 8, Karl W. Fischer, assistant to Ralph Budd, in charge of the transportation section of the National Defense Commission, said that his organization had worked out several types of special equipment for the transportation of troops and military material.

During the discussion, which was participated in by all the members of the commission, Mr. Fischer said that the transportation division wanted to avoid, if possible, any need for priority in transportation or any embargoes on any particular commodities. It is of the utmost importance, he pointed out, that provision be made for the proper reception of shipments of all kinds of commodities to avoid the use of cars, steamships or pipe lines as warehousing facilities. He went on to say that his organization is making extensive studies of warehousing and terminal facilities.

Discussing the subject of highway transportation, Mr. Fischer told the radio audience that the country has approximately 1,000,000 miles of hard surfaced roads. "Already," he continued, "the War Department and Public Roads Administration have laid out a network of strategic highways. They cover some 80,000 miles of road. They lead to every part of the country. A survey has shown that in the entire chain of 80,000 miles there are less than 2,000 bridges that need to be strengthened to carry the heaviest military equipment, and I might add that the work of strengthening those structures has already been undertaken."

On August 9, Mr. Budd announced the appointment of Charles Gordon, managing director of the American Transit Association, as an advisor on transportation in connection with the national defense program.

Equipment and Supplies

LOCOMOTIVES

THE AKRON, CANTON & YOUNGSTOWN has placed an order for two 2-8-2 type locomotives with the Lima Locomotive Works.

FREIGHT CARS

THE AMERICAN CAR & FOUNDRY COMPANY has been granted authority by the Interstate Commerce Commission to construct for experimental service in the transportation of caustic soda solution and petroleum products a total of 172 tank-car tanks fabricated by the fusion welding process.

THE SOUTHERN PACIFIC has ordered 2,350 freight cars, placing 500 box cars each with the General American Transportation Corporation, the Pressed Steel Car Company and the Bethlehem Steel Company; 500 automobile cars with the Mt. Vernon Car Manufacturing Company and 350 hopper cars with the American Car and Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of July 6. Other cars, to be built in company shops, include 125 flat and 15 drop-end gondolas of 70 tons capacity, and 50 cabooses.

IRON AND STEEL

THE PERE MARQUETTE has ordered 1,850 tons of rails from the Carnegie-Illinois Steel Corporation.

SIGNALING

THE ST. LOUIS SOUTHWESTERN has placed an order with the Union Switch & Signal Co. for equipment involving searchlight signals with necessary relays, rectifiers, transformers, housings, etc., to provide automatic protection at its Bossier City (La.) crossing of the Illinois Central, together with the installation of absolute permissive block signals on its single track line from Bossier City to Silver Lake junction. The field installation work will be carried out by the railway company's regular signal construction forces.

PASSENGER CARS

THE SOUTHERN PACIFIC has placed an order for 51 lightweight streamlined passenger train cars with the Pullman-Standard Car Manufacturing Company. Inquiry for this equipment was reported in the *Railway Age* of July 6.

Some of these cars will be used for re-equipping the "Larks," operating between San Francisco, Cal., and Los Angeles. The new consist of the Larks will also include 26 new lightweight Pullman sleeping cars with drawing room, bedroom, and roomette accommodations.

The balance of the 51 cars will be used on the noon "Daylights" to incorporate refinements in design of the more recently built morning Daylights; on the "San Joaquins"; on the "Coaster"; on the "Californian," between Chicago and Los Angeles; on the "Sunset" between San Francisco and New Orleans; and on the "San Francisco Challenger" and the "Pacific Limited" between Chicago and San Francisco.

Supply Trade

J. B. Emerson, formerly engineer of tests for the Rail committee of the American Railway Engineering Association and later associated with the passenger car axle research conducted by the A. A. R., Mechanical division, at the Timken Roller Bearing Company's laboratory at Canton, Ohio, has become affiliated with the **Pittsburgh Testing Laboratory's** railroad inspection department, with headquarters in Chicago.

A. A. Ortega, who has been sales engineer with the **Magor Car Corporation,** with headquarters at Havana, Cuba, since 1923, has been appointed export sales manager, with headquarters at New York, to head the export department recently

A. A. Ortega

created by the corporation. He was born in Santiago de Cuba, Cuba, on September 1, 1888, was educated at schools in Cuba and at Delaware Academy, Delhi, N. Y., and was graduated with a civil engineering degree from Rensselaer Polytechnic Institute, Troy, N. Y., in 1913. Until 1919 Mr. Ortega was on location and construction work on railroads and highways in Cuba and the Dominion Republic. In the latter year he joined the staff of A. M. Puente & Co., agents at Havana for Magor Car Corporation, and in 1923 went directly with Magor as sales engineer.

Samuel M. Felton, whose appointment as Eastern sales manager of the railroad division of the **Edward G. Budd Manufacturing Company** was announced in last week's *Railway Age,* was born in Cincinnati, Ohio, in 1893, the son of the late S. M. Felton, who was president of the Great Western from 1909 to 1925, and chairman of the board until his death in 1930. He was graduated from Harvard University in 1916 and in 1917 went overseas with the 13th Engineers, the regiment which operated the Verdun military rail-

Samuel M. Felton

ways, and later became adjutant in the U. S. Engineering Brigade with the British Third Army, in connection with the operation of trench tramways.

On his return from overseas, Mr. Felton joined the Pure Oil Company, and rose successively through various positions to become general manager of the Eastern division. He was associated with the White Motors Company from 1926 to 1935, when he joined the Budd organization.

OBITUARY

William B. Hall, president of the Union Railway Equipment Company, Chicago, died in that city on July 31. Mr. Hall was born in Nebraska City, Neb., on April 12, 1872. He entered railway service in 1891 in the operating department of the Chicago, Burlington & Quincy at Chicago and three years later resigned to accept a position with the Continental Illinois National Bank in Chicago. In 1896, he entered the employ of the Mather Stock Car Company and was in charge of purchases and production for that company, with which company he remained until 1911. In 1912, he and two partners organized the Union Railway Equipment Company, Chicago. Subsequently, Mr. Hall acquired their interests.

George E. Spengler, who has represented The Superheater Company and several other supply companies for many years in the Far East, died on August 9, in a San Francisco (Cal.) hospital after a brief illness. He had just returned from China. Mr. Spengler was born in Chicago in 1882, and after attending schools in Chicago entered the service of the Chicago & North Western, becoming road foreman of engines. He left the service of the railroad to become a traveling engineer for The Superheater Company and during 1917 traveled to Russia as service representative in connection with the shipment of American-built locomotives. On his return to the United States he joined the Stevens Commission to investigate railroads in Manchuria. Thereafter, he made his home in China as representative of The Superheater Company and other American firms.

Financial

BALTIMORE & OHIO.—*Voluntary Adjustment Plan.*—The three-judge federal court in charge of the recently-completed voluntary adjustment plan of the Baltimore & Ohio under the Chandler Act has approved expenditures of the road incurred in the completion of the plan totaling $1,489,000. In its 20-page opinion on the expenditure, the court said that "in view of the nature, novelty and result of the case, the amount, though regrettably large, is reasonable and should be approved." The court pointed out that the aggregate expense is only about one-quarter of one per cent of the par value of $542,000,000 of the total securities affected by the plan and stated that the aggregate of all expenditures "must fairly be considered in proportion to the case as a whole and in relation to the magnitude of the financial interest involved." The total cost of the plan figures out at 0.27 per cent of the par value of the securities affected.

CAIRO, TRUMAN & SOUTHERN.—*Abandonment.*—This company has been granted authority by Division 4 of the Interstate Commerce Commission to abandon its entire line of railroad extending northward from Weona Junction, Ark., to Weona, 3.8 miles.

ILLINOIS CENTRAL. — *Operation.* — This company has asked authority from the Interstate Commerce Commission to extend its operations over 5,900 ft. of tracks owned by the Birmingham Southern and to use certain freight house facilities and tracks leading thereto, to be constructed by the Birmingham Southern in Birmingham, Ala., 4,200 ft., a total of 10,100 ft.

JAY STREET CONNECTING.—*Acquisition.*—This company has asked authority from the Interstate Commerce Commission to acquire and operate certain freight station, car float, and lighterage facilities and routes heretofore owned and operated by the Jay Street Terminal, including 19,182 ft. of track in Brooklyn, N. Y. The routes involved are between the New Jersey shore and Brooklyn, N. Y., in New York harbor.

LOUISIANA & ARKANSAS.—*R. F. C. Loan and Bonds.*—Division 4 of the Interstate Commerce Commission has approved a loan to this company by the Reconstruction Finance Corporation in the amount of $1,000,000, the proceeds to be used for improvements to the property. The loan, which is for a five-year period, will be secured by the deposit as collateral of $300,000 of L. & A. first mortgage five per cent bonds, maturing January 1, 1969; $850,000 of L. & A. first mortgage five per cent bonds, due January 1, 1969; and $450,000 of Kansas City Southern refunding and improvement five per cent bonds, due April 1, 1950. At the same time Division 4 authorized the company to procure the authentication and delivery of $300,000 of the first mortgage five per cent bonds which are included in the abovementioned collateral.

MARCELLUS & OTISCO.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon that portion of its line extending south from Marcellus, N. Y., to the end of the line at Otisco Lake, seven miles.

MOBILE & OHIO.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a part of its Bay Shore branch extending from Tacon station in the city limits of Mobile, Ala., in a southwesterly direction to Bayou la Batre, 29.9 miles.

NEW YORK, NEW HAVEN & HARTFORD.—*Reorganization Case Reopened.*—The Interstate Commerce Commission has reopened this company's reorganization case and assigned it for further hearing before Finance Director Oliver E. Sweet in Washington, D. C., on September 9. At that time, says the commission's order, evidence will be received regarding the proposed abandonment of the so-called Boston Group of properties of the Old Colony and in support of and in opposition to the inclusion of provisions for reorganization of the Old Colony in the plan of reorganization of the New York, New Haven & Hartford.

ST. LOUIS-SAN FRANCISCO.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon a portion of its so-called Bentonville branch extending from Bentonville, Ark., to Grove, Okla., 41 miles.

SKANEATELES. — *Abandonment.* — This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon its entire line extending from Skaneateles, N. Y., to Skaneateles Junction, five miles.

SOUTHERN.—*Abandonment.* — This company has been granted authority by Division 4 of the Interstate Commerce Commission to abandon a line extending from Maryville, Tenn., to Walland, 10.2 miles.

SOUTHERN NEW YORK.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a line extending from West Oneonta, N. Y., to Jordanville, 41.2 miles.

TEXAS & PACIFIC.—*Operation.*—This company has asked the Interstate Commerce Commission for authority to extend its operation from Torras, La., to Simmesport, by operating over the line of the Louisiana & Arkansas under a contract for joint use, eight miles.

VIRGINIAN.— *Purchase.*— This company has been authorized by Division 4 of the Interstate Commerce Commission to purchase the Suffolk, Va., terminal properties of the Norfolk Southern, consisting of 2.3 miles of railroad, together with all lands, industrial and spur tracks, yards, stations, buildings, and other improvements.

Average Prices of Stocks and Bonds

	Aug. 13	Last week	Last year
Average price of 20 representative railway stocks..	27.98	28.63	29.56
Average price of 20 representative railway bonds..	58.39	58.36	59.58

Construction

CHICAGO, BURLINGTON & QUINCY.—A contract has been awarded the Karnoff Construction Company, Kansas City, Mo., for the construction of a brick and concrete roundhouse at North Kansas City, Mo.

CHICAGO, BURLINGTON & QUINCY.—Company forces are making improvements at the roundhouse and local switching yards in Ottumwa, Iowa, to expedite the servicing of locomotives and movement of fast trains. Yard trackage is being improved and cinder, sand and coal facilities rearranged so that eastbound locomotives can take coal, water and sand and drop cinders at one spotting.

COLUMBIA & GREENVILLE.—An order has been placed with the Ross and White Company for locomotive coaler for installation at Winona, Miss.

ERIE.—The New York Public Service Commission has awarded a contract in the amount of $124,159 to Davis & Stearns, Inc., of Whitesboro, N. Y., to cover the cost of elimination of the North Broad street crossing of the Erie in the village of Johnson City.

ILLINOIS CENTRAL.—This company has placed an order with the Ogle Construction Company for the construction of a 100-ton capacity full automatic skip hoist coaling station at Bloomington, Ind.

ILLINOIS CENTRAL.—A contract has been awarded the Ross and White Company, Chicago, for the furnishing and the complete construction, including foundations, of an "N & W" type electric cinder plant, and a combined, fire-proof, bucket type, locomotive coaler at Louisville, Ky.

LEHIGH VALLEY.—An order has been placed with the Ross and White Company for an engine coaler for installation at Suspension Bridge, N. Y.

MINNEAPOLIS & ST. LOUIS.—This company has purchased automatic locomotive coaling equipment from the Ross and White Company for use at Morton, Minn.

MISSOURI PACIFIC.—This company has purchased automatic locomotive coaling equipment for use at Kansas City, Kan., from the Ross and White Company.

NORFOLK & WESTERN.—This company has purchased from the Ross and White Company equipment, including special wet sand conveyors, concrete hopper gates and a steam stand dryer for a sanding plant that the railway is building at Bluefield, W. Va.

PERE MARQUETTE.—A contract has been awarded the Canadian Bridge Company, Walkerville, Ont., for the strengthening of the substructure and superstructure of the railroad's bridge at St. Thomas, Ont., at a cost of $60,000.

TEXAS & PACIFIC.—A contract has been awarded Nathan Wohlfeld, Dallas, Tex., for the construction of a passenger station at Shreveport, La., to cost $170,000.

Continued on next left-hand page

It is a Question of Operating Economy

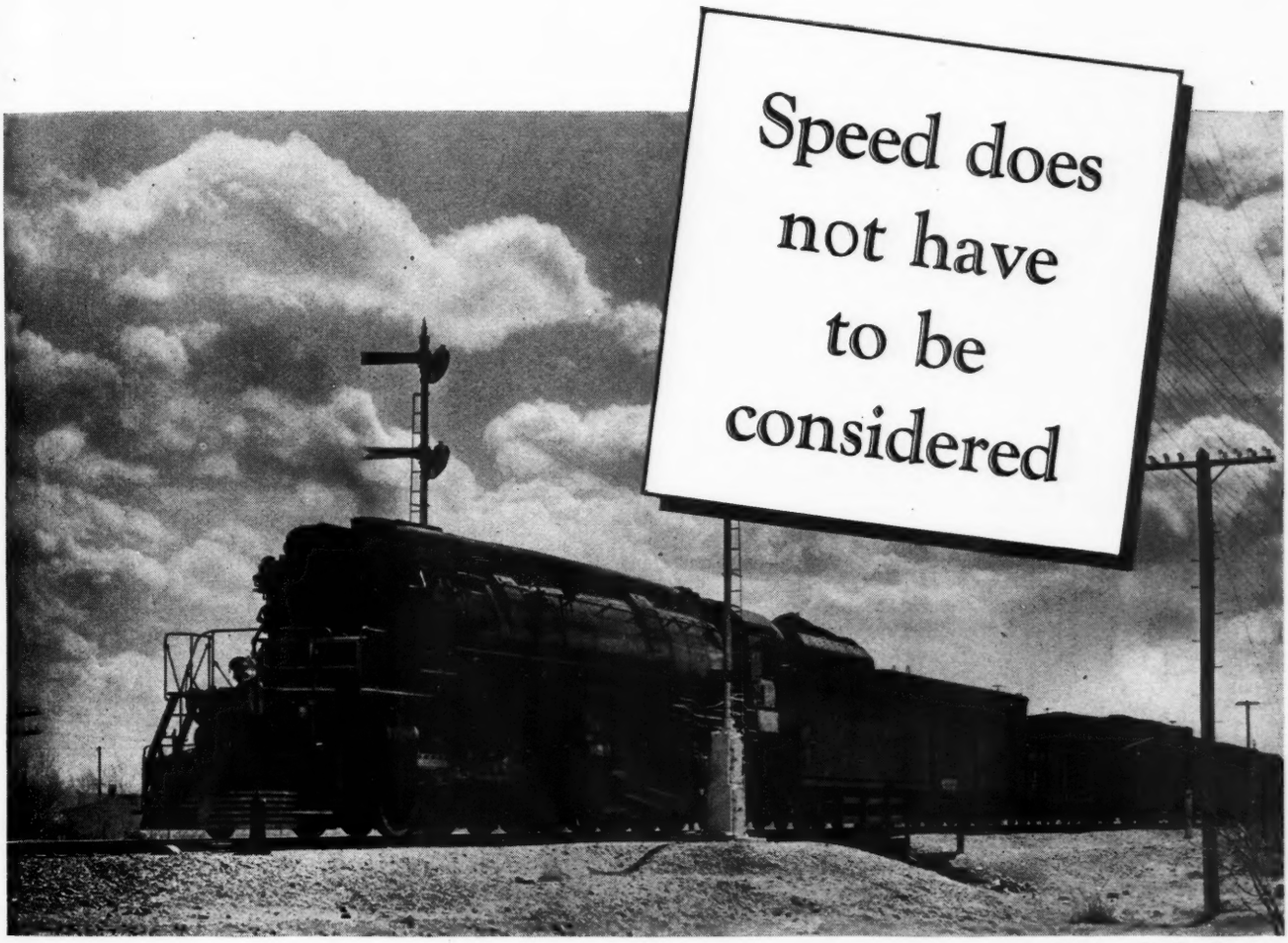


Photo courtesy Southern Pacific Company

Speed has never been a limitation of the steam locomotive. But with present-day demands, speed must be coupled with high hauling capacity. Only "*Modern* Steam Power" is capable of meeting these demands economically. Whatever your operating problem, passenger or freight, you will get better results with lower operating costs if you modernize with Lima Modern Steam Locomotives.

LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

Railway Officers

EXECUTIVES

Carleton W. Meyer, whose appointment as assistant to president of the New York Central System at New York was reported in the *Railway Age* of August 10, was born on August 27, 1903, at Madison, Wis., the son of Balthasar H. Meyer, who was a member of the Interstate Commerce Commission from 1911 to 1939. Carleton W. Meyer was graduated from the University of Wisconsin in 1924 with a B. A. degree and from Harvard Law School in 1927 with an LL. B. degree. He was associated with C. C. McChord in law practice at Washington, D. C., from 1928 to 1929, when he became attorney for the Cambria & Indiana, J. H. Weaver & Co. and associated companies, Philadelphia, Pa., remaining in this capacity until

Carleton W. Meyer

1931. From the latter date until 1936 Mr. Meyer served as attorney for the Delaware & Hudson at New York. He was commerce counsel for the New York Central System at New York from 1936 until his recent appointment as assistant to president, effective August 1.

TRAFFIC

C. H. Hanson, commercial agent for the Kansas City Southern-Louisiana & Arkansas, with headquarters at Chicago, has been promoted to general agent, with the same headquarters.

Morton B. Duggan of Chicago, chief rate expert in the passenger department of the Illinois Central, has been appointed chairman of the Southern Passenger Association, with headquarters in Atlanta, Ga., to succeed **C. B. Rhodes,** retired.

James Henry Hatcher, whose appointment as general eastern freight agent of the Atlantic Coast Line at New York was reported in the *Railway Age* of June 22, was born on September 4, 1900, at Bascom, Fla. In April, 1918, Mr. Hatcher became assistant purser for the Peninsula & Occidental Steamship Company at Key West, Fla. In October, 1924, he went with the Norfolk Southern as soliciting freight

James Henry Hatcher

agent at Raleigh, N. C., being promoted to traveling freight agent in June, 1925. He entered the service of the Atlantic Coast Line on January 20, 1927, as traveling freight agent and was promoted to commercial agent in June, 1928. Mr. Hatcher became assistant general freight agent at Miami, Fla., in October, 1937, the position he held until last June 15, when he was promoted to general eastern freight agent at New York.

OPERATING

Alvin Jardine, whose appointment as superintendent of the Temiskaming & Northern Ontario at Englehart, Ont., was announced in the *Railway Age* of July 20, was born June 5, 1891, in Ontario. Mr. Jardine entered railroad service on August 12, 1914, with the Temiskaming & Northern Ontario as operator at Cobalt, Ont., being transferred to Iroquois Falls, Ont.,

Alvin Jardine

the following month. On December 3, 1915, he enlisted with the Canadian Corps Signal Company, serving with that unit in England and France until July, 1919. Reentering the service of the Temiskaming & Northern Ontario on July 15, 1919, he served as operator at Iroquois Falls until March 1, 1922, when he became relieving agent. On November 15, 1922, Mr. Jardine was appointed relieving train dispatcher and on January 15, 1923, became train dispatcher at North Bay, Ont., acting as relieving chief dispatcher during vacation periods from 1937 to 1940.

ENGINEERING AND SIGNALING

Walter A. Blackwell, whose appointment as engineer maintenance of way of the Western Maryland at Baltimore, Md., was reported in the *Railway Age* of June 22, was born on July 17, 1908, at North East, Md. Mr. Blackwell was graduated from the University of Delaware in 1929 and entered railroad service with the Pennsylvania at Newark, Del., in June, 1925. He went with the Baltimore & Ohio as track apprentice at Hancock, Md., in October, 1927, and became assistant supervisor on that road at Wheeling, W. Va., in April, 1930, being transferred to Washington, Pa., in July, 1930, and to Pittsburgh, Pa., in October, 1931. Mr. Blackwell became foreman for the Potomac Real Estate & Construction Company at Hancock in May, 1932, and went with W. D. Byron & Sons, Williamsport, Md., in September, 1933, becoming county engineer, Maryland State Roads Commission, Centreville, Md., in September, 1935. He entered the service of the Western Maryland in September, 1937, as bridge and building inspector at Hagerstown, Md., becoming inspector of track at Hagerstown in February, 1940, the position he held until June 12, when he was appointed assistant engineer maintenance of way, at Baltimore.

OBITUARY

C. E. Angove, who retired as superintendent of the Great Western on July 1, 1939, died in Loveland, Colo., on August 7.

Gaillard R. Miller, superintendent of reading rooms for the Atchison, Topeka & Santa Fe, with headquarters at Los Angeles, Cal., died on August 5 in the company's hospital after a three weeks' illness.

Joseph H. Prior, who resigned as engineer of design of the Chicago, Milwaukee, St. Paul & Pacific in 1914, to become chief engineer of the Illinois Commerce Commission, and who has been engaged in engineering work for the city of Chicago in recent years, died in Chicago on July 1.

H. H. Brewer, who retired as assistant general manager of the Canadian National at Winnipeg, Man., in 1924, died at Portland, Ore., on August 7. Previous to his retirement, Mr. Brewer had 41 years' experience in the operating department of various railways, 17 years of which were spent on United States railroads before he joined the Grand Trunk as yardmaster at Durand, Mich., in 1900. After serving at other points in Canada, he was stationed at Montreal as general yardmaster for the Grand Trunk from November, 1902, to May, 1904, after which he became terminal superintendent at Toronto for three years before being stationed at Winnipeg, where he rose to the position of assistant general manager. He was born at Owosso, Mich., on November 19, 1862.

Table of Revenues and Expenses begins on next left-hand page

To effectively dampen the oscillation between these new tenders and the locomotives, and to keep maintenance at a minimum the Union Pacific has installed Franklin E-2 Radial Buffers, which provide universal movement of the buffer and full faced contact of buffer surfaces at all times, also eliminate lost motion and subsequent destructive shocks to drawbars and pins. » » » Today, when maintenance is being cut to a minimum and safety kept at a maximum, the E-2 Radial Buffer is increasingly popular with the people who watch the cost sheets.

The Franklin Automatic Compensator & Snubber, twin of the Radial Buffer, has also been installed on these locomotives for the equally important task of maintaining accurate adjustment of the driving box wedges . . . *at all times.*

FRANKLIN RAILWAY SUPPLY COMPANY, INC. NEW YORK CHICAGO MONTREAL

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1940

Name of road		Av. milage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1940	Net railway operating income 1939
Akron, Canton & Youngstown	June	171	$166,544	$35	$173,200	$36,124	$20,297	$14,238	$53,402	$133,413	77.0	$39,787	$26,019	$18,667	$14,357
	6 mos.	171	1,056,200	180	1,102,024	151,657	126,585	83,312	338,656	755,783	68.6	346,241	257,373	189,169	79,497
Alton	June	959	951,428	218,200	1,349,166	244,660	215,203	47,001	530,424	1,108,688	82.2	240,478	160,441	—7,835	95,549
	6 mos.	959	5,262,275	1,256,031	7,652,343	1,115,318	1,351,566	275,941	3,274,123	6,444,024	84.2	1,208,319	669,304	—306,832	—63,544
Atchison, Topeka & Santa Fe System	June	13,414	11,296,403	1,647,749	13,978,643	2,415,904	2,974,881	478,614	4,964,134	11,187,488	80.0	2,791,155	1,505,563	1,627,076	2,336,611
	6 mos.	13,416	59,984,275	8,367,633	75,183,585	12,236,028	17,906,613	2,815,456	28,259,032	63,427,054	84.4	11,756,531	4,358,648	4,473,812	2,665,190
Atlanta & West Point	June	93	98,876	24,449	144,826	21,389	27,469	8,438	61,647	129,007	89.1	15,819	3,755	—7,738	—12,484
	6 mos.	93	639,205	141,511	914,711	133,795	164,472	51,449	389,068	802,241	87.7	112,470	42,009	—29,683	—48,862
Western of Alabama	June	133	98,449	24,485	138,041	17,993	30,018	8,220	53,726	118,957	86.2	19,084	6,456	9,707	—4,198
	6 mos.	133	623,708	139,180	863,465	123,889	184,245	49,184	343,120	756,699	87.6	106,766	31,341	43,509	31,916
Atlanta, Birmingham & Coast	June	639	225,127	5,762	251,742	44,044	47,257	24,359	112,074	246,051	97.7	5,691	—19,474	—38,544	—21,616
	6 mos.	639	1,416,108	178,623	1,728,272	293,726	303,953	144,344	736,917	1,586,923	91.8	141,349	—13,725	—149,650	—34,706
Atlantic Coast Line	June	5,101	2,737,073	361,765	3,407,932	429,083	796,714	153,462	1,484,831	2,996,089	87.9	411,843	61,843	—206,223	—60,345
	6 mos.	5,101	18,469,278	5,134,266	26,276,332	2,695,133	5,213,474	980,531	10,508,764	20,669,331	78.7	5,607,001	2,657,001	1,143,051	2,711,882
Charleston & Western Carolina	June	343	192,306	1,069	197,087	32,465	38,934	9,609	65,298	152,762	77.5	44,325	22,325	15,829	47,079
	6 mos.	343	1,298,942	7,791	1,333,009	168,845	267,920	55,035	432,457	959,087	71.9	373,922	234,922	201,909	230,548
Baltimore & Ohio	June	6,380	13,508,880	928,379	15,294,836	1,652,350	3,144,615	442,006	4,986,353	11,014,368	72.0	4,280,468	3,330,108	2,840,614	1,863,883
	6 mos.	6,381	73,460,020	4,742,066	83,159,829	7,596,482	18,706,094	2,463,899	30,289,590	62,982,771	75.7	20,177,058	14,458,782	12,376,162	7,708,221
Staten Island Rapid Transit	June	24	53,305	69,591	132,191	10,851	22,379	1,041	73,299	118,617	89.7	13,574	—10,738	—14,707	—20,155
	6 mos.	24	343,139	396,314	784,862	62,040	143,595	6,740	462,191	742,935	94.7	41,927	—113,446	—147,969	—168,699
Bangor & Aroostook	June	603	258,986	14,080	285,346	99,873	53,803	4,890	87,255	266,277	93.3	19,069	—21,499	374	12,384
	6 mos.	603	2,885,718	89,815	3,079,603	539,078	490,548	29,241	775,679	1,978,318	64.2	1,101,285	777,046	770,198	849,556
Bessemer & Lake Erie	June	224	2,046,858	425	2,055,496	131,662	327,060	12,665	249,315	757,432	36.8	1,298,064	920,863	948,399	735,851
	6 mos.	224	6,623,507	3,748	6,675,992	661,664	1,834,128	75,528	1,177,709	3,946,220	59.1	2,729,772	1,882,617	2,152,370	522,515
Boston & Maine	June	1,910	2,748,579	580,044	3,855,299	483,149	518,937	65,283	1,445,078	2,655,866	68.9	1,199,433	906,001	685,351	509,456
	6 mos.	1,910	16,691,688	3,319,276	22,962,401	2,944,978	3,473,877	379,826	9,239,111	16,961,870	73.9	6,000,531	4,216,251	2,879,254	2,472,873
Burlington, Rock Island	June	255	62,603	20,601	90,651	16,381	15,863	4,863	49,064	95,293	105.1	—4,642	—14,513	—19,562	—11,514
	6 mos.	255	456,101	109,657	613,283	97,568	107,240	26,885	300,814	589,585	96.1	23,698	—37,978	—75,174	—103,779
Cambria & Indiana	June	37	111,983	.....	112,075	8,169	60,119	408	11,437	84,202	75.13	27,873	—13,650	45,090	84,627
	6 mos.	37	741,862	.....	742,426	46,000	304,995	2,653	77,320	464,904	62.62	277,522	81,618	479,314	402,766
Canadian Pacific Lines in Maine	June	234	123,258	15,103	154,372	47,534	33,099	6,013	56,466	148,545	96.2	5,827	—4,660	—16,621	—65,387
	6 mos.	234	1,623,526	75,621	1,777,257	214,178	285,307	41,715	559,916	1,134,930	63.9	642,327	574,594	447,106	139,522
Canadian Pacific Lines in Vermont	June	91	72,785	6,636	90,950	26,197	23,239	2,093	62,282	116,379	128.0	—25,429	—33,790	—53,988	—57,401
	6 mos.	91	487,436	46,734	598,616	94,126	151,864	15,098	399,984	678,565	113.4	—79,949	—124,682	—245,569	—308,678
Central of Georgia	June	1,863	1,007,439	96,028	1,224,978	186,931	272,593	53,658	565,138	1,150,933	94.0	74,045	—45,613	—78,874	—28,116
	6 mos.	1,866	6,378,065	645,429	7,944,251	1,112,338	1,627,410	327,026	3,543,717	7,077,013	89.1	867,238	129,926	—4,118	122,938
Central of New Jersey	June	710	2,345,336	353,732	2,896,462	296,603	640,584	49,750	1,129,847	2,236,532	77.2	659,930	239,979	91,225	—40,455
	6 mos.	710	14,205,445	1,984,272	17,288,169	1,488,685	3,786,168	284,759	7,109,183	13,262,700	76.7	4,025,469	1,547,188	506,024	161,501
Central Vermont	June	422	458,015	26,678	530,763	94,462	69,979	12,076	218,616	414,177	78.0	116,586	91,441	44,764	8,974
	6 mos.	422	2,799,097	164,903	3,193,450	416,162	512,741	70,539	1,351,792	2,465,401	77.2	728,049	583,622	346,911	1,946
Chesapeake & Ohio	June	3,115	10,976,429	305,627	11,776,195	1,041,005	2,058,076	226,421	2,588,027	6,241,984	53.0	5,534,211	3,624,523	3,528,291	3,346,861
	6 mos.	3,116	61,538,367	1,568,055	65,412,866	6,120,259	12,456,876	1,251,823	15,454,596	37,143,862	56.8	28,269,004	19,740,888	19,977,084	10,410,307
Chicago & Eastern Illinois	June	924	928,149	133,221	1,211,547	175,048	210,796	56,072	492,084	997,099	82.3	214,448	124,448	1,576	—51,581
	6 mos.	924	5,805,222	762,372	7,483,572	922,090	1,404,868	339,259	3,118,766	6,165,626	82.4	1,317,946	799,946	34,096	—19,269
Chicago & Illinois Midland	June	131	319,623	615	346,246	46,141	60,741	19,560	81,441	227,046	65.6	119,200	138,644	143,091	52,186
	6 mos.	131	2,017,719	3,792	2,138,471	264,340	395,515	122,745	540,078	1,440,191	67.3	698,280	549,525	538,568	353,136
Chicago & North Western	June	8,322	5,766,525	1,166,170	7,695,097	1,176,158	1,434,231	209,002	2,818,833	5,956,427	77.4	1,738,670	1,172,166	964,315	297,197
	6 mos.	8,326	31,294,771	5,313,015	41,215,427	6,111,230	8,759,158	1,131,202	17,462,849	35,379,564	85.8	5,835,863	2,284,154	892,023	—1,635,030
Chicago, Burlington & Quincy	June	8,958	5,440,214	761,570	7,026,375	1,497,520	1,353,036	262,933	2,696,995	6,111,232	87.0	915,143	162,675	—88,733	—15,813
	6 mos.	8,988	35,068,706	3,889,470	43,903,674	6,457,154	8,401,026	1,521,802	17,178,895	35,335,580	80.5	8,568,094	4,001,485	2,202,886	2,303,582
Chicago Great Western	June	1,502	1,185,170	41,249	1,328,207	206,193	217,380	58,732	514,317	1,048,604	78.9	279,603	184,953	11,391	81,105
	6 mos.	1,502	7,676,639	219,464	8,510,549	1,158,457	1,443,272	355,284	3,340,270	6,605,652	77.6	1,904,897	1,335,228	258,146	324,155
Chicago, Indianapolis & Louisville	June	549	605,854	39,462	725,929	74,192	114,638	26,756	264,193	511,443	70.5	214,486	172,173	85,203	—29,217
	6 mos.	549	3,960,956	240,348	4,628,329	412,408	761,758	169,620	1,729,620	3,282,277	70.9	1,346,052	1,091,656	525,115	—320,115

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NO. 125 OF A SERIES OF FAMOUS ARCHES OF THE WORLD

QUINTA NOVA VIADUCT

PORTUGAL

This viaduct of the Sul Railway was completed in 1936. It consists of one principal arch of 98 ft. and seven minor arches each of 39 ft. The total length, including the approaches is 565 ft. The single track, which is 104 ft. from water level, carries heavy steam-operated passenger and freight traffic. » » » The Security Sectional Arch has played a leading part in providing low-cost steam transportation and fuel economy. But only when you have a complete arch, with every brick in place, can you realize the true efficiency of your arch.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1940—CONTINUED

Name of road		Av. milage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1940	Net railway operating income 1939
Chicago, Milwaukee, St. Paul & Pacific	June	10,882	$6,969,628	$749,469	$8,652,708	$2,288,259	$1,668,494	$241,867	$3,167,133	$7,714,081	89.2	$938,627	$217,627	—$154,527	—$490,337
	6 mos.	10,883	43,328,002	3,563,113	52,032,263	8,642,052	10,159,185	1,367,201	20,024,575	42,387,269	81.5	9,644,994	5,407,994	3,023,475	108,820
Chicago, Rock Island & Pacific	June	7,909	5,257,644	678,772	6,495,814	1,171,174	1,179,949	260,083	2,420,715	5,270,747	81.1	1,225,067	740,454	360,697	483,261
	6 mos.	7,888	30,065,889	3,825,160	37,343,258	5,015,404	7,241,936	1,549,647	14,871,350	30,510,839	81.7	6,832,419	3,909,610	1,545,117	862,854
Chicago, St. Paul, Minneapolis & Omaha	June	1,629	1,143,782	153,207	1,390,559	305,921	251,944	39,748	621,630	1,285,324	92.4	105,235	—8,339	—108,063	—190,023
	6 mos.	1,629	6,745,543	731,249	8,022,935	1,136,938	1,521,569	236,442	3,905,267	7,204,752	89.8	818,183	137,315	—519,352	—735,239
Clinchfield Railroad	June	308	599,284	3,911	608,255	54,458	127,403	19,493	118,576	335,372	55.1	272,883	182,258	204,598	211,944
	6 mos.	308	4,369,309	20,835	4,423,548	261,353	718,496	117,042	813,902	2,004,894	45.3	2,418,654	1,871,710	1,967,136	1,385,066
Colorado & Southern	June	786	410,000	29,835	488,698	203,452	112,682	15,028	193,276	551,655	112.9	—62,957	—140,013	—161,971	34,671
	6 mos.	786	2,571,903	165,524	3,030,864	490,836	618,407	85,453	1,245,535	2,602,166	85.9	428,698	44,373	—60,653	15,594
Fort Worth & Denver City	June	902	436,461	53,649	474,606	73,141	80,014	22,692	172,287	378,213	79.7	96,393	58,023	20,573	80,500
	6 mos.	902	2,534,520	270,315	2,762,346	359,180	491,728	115,962	1,014,353	2,160,538	78.2	601,808	374,788	184,903	98,803
Columbus & Greenville	June	168	71,162	3,565	79,694	15,270	12,294	4,538	32,710	90,952	114.1	—11,258	—17,438	—15,632	16,250
	6 mos.	168	517,472	27,354	579,089	94,142	86,895	26,360	215,672	504,613	87.1	74,476	5,803	9,274	101,390
Delaware & Hudson	June	846	2,027,314	59,584	2,215,027	252,835	400,966	50,257	754,699	1,542,678	69.6	672,349	519,671	489,017	302,190
	6 mos.	846	11,821,377	443,096	12,823,292	1,424,513	2,391,672	260,783	4,728,611	9,310,523	72.6	3,512,769	2,589,254	2,437,170	2,338,374
Delaware, Lackawanna & Western	June	995	3,229,852	529,053	4,231,224	367,962	728,704	118,184	1,793,483	3,139,762	74.2	1,091,462	643,462	636,057	266,368
	6 mos.	995	20,020,340	3,114,117	25,752,419	1,731,381	4,913,776	673,717	11,729,100	19,951,358	77.5	5,801,061	3,155,761	2,856,241	2,406,673
Denver & Rio Grande Western	June	2,554	1,665,445	137,831	1,907,445	329,721	504,406	82,555	667,176	1,643,159	86.1	264,286	70,878	21,926	—85,508
	6 mos.	2,554	10,056,756	612,977	11,268,877	1,706,780	3,007,326	464,301	4,184,537	9,828,422	87.2	1,440,455	188,878	—123,648	—483,095
Denver & Salt Lake	June	232	75,069	4,973	87,644	25,876	43,040	2,600	41,546	122,367	139.6	—34,723	—59,180	—7,798	—14,496
	6 mos.	232	942,722	34,536	1,029,246	129,197	262,835	16,204	342,073	809,269	78.6	219,977	70,382	352,647	180,566
Detroit & Mackinac	June	242	56,003	2,252	66,457	19,223	12,317	1,239	23,148	58,916	88.7	7,541	4,552	941	5,977
	6 mos.	242	283,449	12,376	337,360	65,376	69,648	5,619	139,716	299,604	88.8	37,756	16,759	—628	8,800
Detroit & Toledo Shore Line	June	50	243,272	.....	244,787	24,898	22,278	8,904	67,693	131,087	53.6	113,700	83,698	41,689	8,411
	6 mos.	50	1,924,544	.....	1,932,573	154,629	141,848	52,236	499,864	893,726	46.2	1,038,847	796,796	473,352	190,632
Detroit, Toledo & Ironton	June	472	453,620	451	469,728	63,963	80,538	12,185	125,261	302,916	64.5	166,812	106,502	100,093	95,687
	6 mos.	472	3,856,679	1,303	3,956,488	408,144	519,781	73,354	893,736	2,017,255	51.0	1,939,233	1,450,345	1,319,972	928,894
Duluth, Missabe & Iron Range	June	541	3,301,211	2,371	3,835,413	222,591	231,918	4,112	500,541	989,264	25.8	2,846,149	2,115,132	2,111,357	1,499,037
	6 mos.	541	6,691,452	9,448	7,811,805	939,630	1,347,430	25,831	1,615,975	4,113,529	52.7	3,698,276	1,755,361	1,756,009	72,084
Duluth, Winnipeg & Pacific	June	175	120,444	1,446	125,076	23,815	17,883	2,177	45,526	93,061	74.4	32,015	22,037	9,107	—25,161
	6 mos.	175	689,788	6,336	714,267	132,280	122,814	12,799	284,093	572,213	80.1	142,054	84,679	—9,320	—81,707
Elgin, Joliet & Eastern	June	390	1,413,978	.....	1,729,478	145,066	270,716	15,538	609,164	1,077,819	62.3	651,659	512,681	453,362	95,691
	6 mos.	390	8,170,657	71	9,602,662	789,309	1,761,698	89,209	3,703,566	6,556,773	68.3	3,045,889	2,294,217	1,800,602	958,713
Erie	June	2,268	6,015,903	400,545	6,955,169	690,190	1,261,123	184,940	2,567,784	4,962,089	71.3	1,993,080	1,420,059	1,148,392	817,275
	6 mos.	2,268	34,850,706	2,217,014	39,813,641	3,409,341	7,869,102	1,070,564	15,602,816	29,544,063	74.2	10,269,578	6,848,505	5,138,110	4,199,692
Florida East Coast	June	685	404,937	118,837	589,628	127,308	158,110	27,436	228,302	592,335	100.5	—2,707	—71,331	—161,164	—196,898
	6 mos.	685	3,534,146	3,210,378	6,417,804	686,959	956,265	180,510	2,144,614	4,418,733	68.9	1,999,071	1,555,845	1,142,402	1,088,004
Georgia Railroad	June	329	273,438	13,696	309,789	29,478	55,930	17,810	134,458	251,328	81.1	58,461	43,426	50,540	44,218
	6 mos.	329	1,675,070	74,965	1,893,281	219,062	328,361	108,210	835,688	1,574,088	83.1	319,193	229,631	266,936	250,225
Georgia & Florida	June	408	83,664	1,881	89,112	20,315	15,764	8,614	34,212	84,150	94.4	4,962	—3,164	—5,184	—7,487
	6 mos.	408	505,822	7,882	535,068	132,503	96,982	51,612	221,284	534,221	99.8	847	—48,547	—70,617	—72,492
Grand Trunk Western	June	1,029	1,739,957	80,204	1,939,996	269,103	377,220	41,909	751,363	1,508,669	77.8	431,327	323,563	264,977	97,802
	6 mos.	1,029	11,144,748	424,167	12,363,894	1,495,679	2,330,232	245,298	4,834,683	9,327,763	75.4	3,036,131	2,293,137	1,794,891	483,458
Canadian National Lines in New England	June	172	118,315	4,552	133,728	53,630	22,643	1,492	58,060	141,799	106.0	—8,071	24,166	61,533	48,730
	6 mos.	172	739,465	19,906	843,481	230,286	164,138	8,905	399,141	843,791	100.0	—310	—96,879	—340,991	—353,734
Great Northern	June	8,069	7,521,916	509,199	8,906,215	1,267,037	1,443,173	227,192	2,326,081	5,516,515	61.9	3,389,700	2,418,443	2,332,994	2,158,394
	6 mos.	8,069	35,981,999	1,893,441	41,395,472	5,360,533	7,858,189	1,223,436	13,482,212	29,347,988	70.9	12,047,484	7,385,649	6,649,709	3,735,485
Green Bay & Western	June	234	124,018	273	129,563	37,594	20,468	7,888	42,280	113,337	87.4	16,226	1,667	—3,498	11,592
	6 mos.	234	788,546	1,609	819,679	155,839	100,114	42,483	282,769	611,414	74.5	208,265	123,081	97,637	112,297
Gulf & Ship Island	June	259	77,578	3,177	88,428	22,604	16,794	2,293	43,810	88,652	100.3	—224	—16,577	—26,051	—21,483
	6 mos.	259	531,610	20,658	610,463	129,534	94,665	15,405	299,302	563,498	92.3	46,965	—49,555	—101,906	—104,737
Gulf, Mobile & Northern	June	827	495,907	18,613	537,775	80,744	75,126	43,358	148,854	380,115	70.7	157,660	107,660	69,528	70,406
	6 mos.	827	3,134,219	97,314	3,374,655	460,141	515,900	245,589	924,459	2,356,912	69.8	1,017,743	717,743	487,262	503,980

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REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1940—CONTINUED

Name of road		Av. milage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1940	Net railway operating income 1939
Illinois Central	June	4,949	$5,967,446	$701,884	$7,260,690	$908,229	$1,839,679	$194,167	$2,750,574	$6,023,511	83.0	$1,237,179	$573,091	$572,910	$677,261
	6 mo.	4,949	39,229,957	4,410,894	47,489,097	5,035,063	10,866,530	1,226,595	18,477,895	37,638,327	79.3	9,850,770	5,578,251	5,126,949	5,267,781
Yazoo & Mississippi Valley	June	1,608	1,014,840	55,108	1,137,523	119,178	214,285	30,209	477,951	892,123	78.4	245,400	104,782	22,445	—8,974
	6 mos.	1,610	6,513,141	323,497	7,287,297	707,709	1,146,361	191,093	2,944,506	5,270,974	72.3	2,016,323	1,173,837	729,782	506,113
Illinois Central System	June	6,557	6,982,286	756,992	8,398,213	1,027,407	2,053,964	224,376	3,228,525	6,915,634	82.3	1,482,579	675,905	605,268	676,199
	6 mos.	6,559	45,743,098	4,734,391	54,776,394	5,742,772	12,012,891	1,417,688	21,422,401	42,909,301	78.3	11,867,093	6,740,262	5,910,209	5,828,871
Illinois Terminal	June	477	400,810	58,372	510,368	59,836	67,377	17,336	167,745	328,988	64.46	181,380	127,835	104,098	69,501
	6 mos.	478	2,317,135	361,031	2,930,134	314,214	429,928	102,402	1,020,145	1,975,002	67.40	955,132	669,501	535,498	438,255
Kansas City Southern	June	879	965,322	32,313	1,108,561	101,435	153,111	54,539	329,432	697,964	63.0	410,597	307,597	245,502	222,012
	6 mos.	879	6,065,740	166,190	6,897,650	605,332	961,888	332,277	2,052,901	4,299,826	62.3	2,597,824	1,989,824	1,641,378	1,415,853
Kansas, Oklahoma & Gulf	June	328	174,430	592	177,441	21,366	8,490	8,525	37,476	82,205	46.3	95,236	77,940	60,343	84,342
	6 mos.	328	1,094,970	2,282	1,114,304	84,053	70,614	52,037	243,485	504,130	45.2	610,174	499,130	398,870	449,833
Lake Superior & Ishpeming	June	156	392,451	62	477,309	45,173	22,990	743	59,738	138,781	29.1	338,528	245,564	243,668	169,672
	6 mos.	156	918,367	301	1,101,375	154,534	160,627	3,625	203,893	563,143	51.1	538,232	295,925	298,793	15,348
Lehigh & Hudson River	June	96	127,155	.....	127,662	21,815	21,107	3,538	37,385	90,093	70.6	37,569	21,192	11,344	4,597
	6 mos.	96	789,847	.....	794,620	75,167	134,480	21,432	265,323	534,637	67.3	259,983	166,739	102,447	87,409
Lehigh & New England	June	190	390,844	.....	393,908	39,395	64,557	6,823	112,792	238,306	60.5	155,602	102,178	107,877	87,258
	6 mos.	190	2,095,130	.....	2,109,066	194,201	379,910	41,679	676,285	1,385,106	65.7	723,960	516,938	550,830	561,152
Lehigh Valley	June	1,269	3,577,530	168,057	3,968,567	266,335	702,132	109,563	1,566,501	2,768,721	69.8	1,199,846	889,467	715,850	134,461
	6 mos.	1,279	20,740,356	947,272	23,094,418	1,464,840	4,079,684	646,775	9,922,241	16,848,260	73.0	6,246,158	4,380,891	3,013,025	3,093,805
Louisiana & Arkansas	June	846	620,266	7,777	650,995	108,442	86,670	28,991	173,580	432,420	66.4	218,575	155,719	113,368	88,617
	6 mos.	846	3,779,996	44,105	3,979,204	638,189	555,407	175,942	1,086,673	2,615,990	65.7	1,363,214	1,031,908	763,719	577,057
Louisville & Nashville	June	4,871	6,806,813	548,630	7,790,288	872,413	1,783,953	183,281	2,649,332	5,761,982	74.0	2,028,306	1,262,103	1,386,290	1,355,964
	6 mos.	4,871	41,482,425	3,098,630	47,542,633	5,109,164	11,509,248	1,099,925	16,406,660	35,786,281	75.3	11,756,352	7,295,517	7,777,681	5,769,831
Maine Central	June	991	795,577	91,546	989,909	156,570	147,636	12,419	338,724	690,807	69.8	299,102	218,423	195,052	184,157
	6 mos.	991	5,292,952	405,923	6,239,975	901,275	1,098,860	64,299	2,210,841	4,477,271	71.8	1,762,704	1,293,622	1,060,712	959,882
Midland Valley	June	352	86,757	4	88,497	17,052	12,066	2,513	27,216	64,640	73.0	23,857	12,599	5,676	26,237
	6 mos.	352	619,583	34	630,683	81,736	61,730	15,807	185,384	380,088	60.3	250,595	182,458	134,675	161,936
Minneapolis & St. Louis	June	1,512	669,313	6,881	710,253	147,221	124,759	48,277	254,690	586,038	82.5	124,215	78,771	42,499	18,551
	6 mos.	1,512	4,007,219	32,768	4,241,228	654,074	775,638	300,353	1,599,646	3,530,638	83.2	710,590	439,117	218,719	176,771
Minneapolis, St. Paul & Sault Ste. Marie	June	4,283	2,233,807	108,948	2,540,284	442,565	369,364	64,388	923,319	1,887,258	74.3	653,026	460,219	357,960	243,803
	6 mos.	4,284	12,064,583	401,168	13,462,990	2,077,205	2,418,687	384,604	5,627,546	11,019,111	81.8	2,443,879	1,418,752	849,092	—419,863
Duluth, South Shore & Atlantic	June	550	235,270	8,626	272,165	47,656	32,864	6,757	88,051	181,735	66.8	90,430	75,644	73,393	28,808
	6 mos.	550	991,592	41,596	1,131,066	191,675	198,949	40,104	466,139	936,301	82.8	194,765	111,509	95,668	—128,777
Spokane International	June	152	61,731	789	68,782	17,879	7,116	2,176	22,076	53,099	77.2	15,683	10,275	6,677	565
	6 mos.	152	327,444	4,026	370,644	93,967	43,847	13,645	129,931	301,204	81.3	69,440	38,127	18,581	22,010
Mississippi Central	June	150	48,782	1,549	52,419	24,967	10,030	7,147	18,246	65,533	125.0	—13,114	—17,932	—22,045	—8,263
	6 mos.	150	356,354	10,842	380,890	106,343	61,933	42,590	120,204	359,368	94.3	21,522	—6,368	—32,872	—38,264
Missouri & Arkansas	June	365	77,808	1,343	84,657	23,570	9,271	7,021	27,996	72,499	85.6	12,158	7,860	—63	4,224
	6 mos.	365	518,274	8,092	569,357	138,574	62,339	41,826	183,346	454,758	79.9	114,599	88,396	37,553	25,878
Missouri-Illinois	June	193	165,615	350	168,199	30,369	18,456	2,779	46,326	103,038	61.3	65,161	45,050	33,192	47,809
	6 mos.	193	992,562	1,872	1,009,227	123,062	132,136	18,265	283,399	588,919	58.4	420,308	317,644	250,186	252,701
Missouri-Kansas-Texas Lines	June	3,293	1,898,869	166,739	2,266,315	290,433	374,064	102,813	860,944	1,745,742	77.0	520,573	316,220	120,265	125,868
	6 mos.	3,294	10,780,627	949,937	13,036,157	1,660,400	2,201,932	631,725	5,297,676	10,532,656	80.8	2,503,501	1,498,260	401,443	175,037
Missouri Pacific	June	7,146	5,130,181	403,780	6,212,111	1,076,755	1,264,803	238,762	2,399,820	5,261,773	84.7	950,338	524,973	198,222	294,991
	6 mos.	7,146	33,679,093	2,490,821	40,042,970	5,774,648	8,077,189	1,455,965	15,483,999	32,416,767	81.0	7,626,203	4,653,250	2,696,059	1,672,286
Gulf Coast Lines	June	1,759	931,956	33,758	1,025,070	181,257	176,521	43,818	356,134	812,111	79.22	212,959	135,238	69,353	—33,963
	6 mos.	1,759	7,411,437	206,278	8,006,873	1,218,621	1,123,043	270,990	2,381,780	5,310,457	66.32	2,696,416	2,218,605	1,588,540	1,904,125
International Great Northern	June	1,155	731,281	73,740	902,901	156,358	163,161	29,591	392,963	796,779	88.2	106,122	44,267	902	16,155
	6 mos.	1,155	4,454,385	462,727	5,582,916	944,850	1,115,269	181,363	2,475,069	5,042,292	90.3	540,624	157,115	—236,681	—287,632
Mobile & Ohio	June	1,181	817,868	26,002	887,476	167,638	190,475	41,433	322,318	798,408	90.0	89,068	45,405	—30,955	18,225
	6 mos.	1,181	5,239,415	136,371	5,656,471	981,393	1,101,297	259,573	2,039,810	4,676,729	82.7	979,742	611,322	151,021	299,203
Monongahela	June	172	407,950	430	410,150	36,891	35,174	452	91,798	166,875	40.7	243,275	186,578	104,694	115,023
	6 mos.	172	2,532,913	3,278	2,550,722	226,459	221,081	2,920	557,011	1,025,104	40.2	1,525,618	1,184,572	704,633	335,911

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REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1940—CONTINUED

Name of road		Av. milage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1940	Net railway operating income 1939
Montour	June	51	$195,938	$17	$197,445	$21,126	$48,862	$877	$41,212	$119,608	60.6	$77,837	$37,600	$68,354	$83,962
	6 mos.	51	1,004,840	17	1,014,688	80,263	257,740	5,397	259,061	641,416	63.2	373,272	231,611	396,138	250,642
Nashville, Chattanooga & St. Louis	June	1,111	945,553	84,152	1,144,939	150,785	237,335	67,737	453,267	962,655	84.1	182,284	99,868	82,881	60,079
	6 mos.	1,111	5,966,568	592,185	7,351,113	779,355	1,463,178	406,935	2,958,631	5,944,957	80.9	1,406,156	924,826	761,656	886,615
Nevada Northern	June	165	49,055	613	54,297	7,588	2,376	1,173	9,558	25,926	47.7	28,371	7,481	10,843	17,814
	6 mos.	165	323,773	4,809	355,523	45,219	15,175	7,344	60,444	158,075	44.5	197,448	118,829	132,886	104,877
New York Central	June	10,986	21,006,380	5,439,019	29,916,581	3,422,412	6,086,471	593,419	10,941,278	22,330,166	74.6	7,586,415	4,398,790	3,160,024	2,456,388
	6 mos.	10,990	127,751,365	28,311,942	175,367,432	18,447,627	37,040,161	3,334,359	68,740,851	135,136,623	77.1	40,230,809	22,749,904	15,624,933	8,689,953
Pittsburgh & Lake Erie	June	233	1,978,344	35,922	2,080,394	166,722	583,209	27,525	534,828	1,391,147	66.9	689,247	384,524	607,971	237,700
	6 mos.	233	9,991,009	240,611	10,562,862	880,549	3,937,870	169,202	3,297,200	8,754,819	82.9	1,808,043	615,296	2,023,150	648,008
New York, Chicago & St. Louis	June	1,704	3,195,153	66,119	3,370,508	387,977	591,297	119,671	1,243,704	2,463,848	73.1	906,660	685,841	400,243	535,940
	6 mos.	1,704	20,811,057	343,861	21,807,346	2,212,710	3,679,548	733,570	8,102,774	15,452,620	70.9	6,354,726	4,958,637	3,143,321	2,833,857
New York, New Haven & Hartford	June	1,864	3,894,078	2,149,267	6,763,532	947,049	1,116,973	113,795	2,528,787	5,076,398	75.1	1,687,134	1,139,544	517,614	322,075
	6 mos.	1,866	23,496,204	12,369,566	40,036,966	4,919,635	6,818,463	699,834	15,774,002	30,506,005	76.2	9,530,961	6,218,371	2,584,837	2,861,601
New York Connecting	June	21	194,968	.....	206,745	36,815	2,653	.....	3,661	44,392	21.5	162,353	118,476	125,766	72,704
	6 mos.	21	1,159,660	.....	1,224,533	182,887	35,890	.....	150,960	377,938	30.9	846,595	586,568	624,155	653,477
New York, Ontario & Western	June	576	396,147	21,397	467,865	55,244	120,082	18,039	230,238	441,936	94.5	25,929	—21,918	—53,756	—91,404
	6 mos.	576	2,250,055	48,510	2,564,341	313,888	644,364	103,301	1,423,497	2,601,534	101.5	—37,193	—321,903	—501,212	—136,627
New York, Susquehanna & Western	June	144	245,600	16,093	273,212	22,570	28,609	2,665	102,842	167,722	61.4	105,490	75,425	47,701	9,249
	6 mos.	144	1,398,045	107,811	1,575,474	112,506	161,844	12,358	634,167	989,943	62.8	585,531	403,589	247,113	154,043
Norfolk & Western	June	2,191	8,221,772	176,677	8,609,751	899,913	1,665,923	147,744	1,726,228	4,626,297	53.7	3,983,454	2,532,121	2,918,556	2,334,635
	6 mos.	2,191	48,041,556	921,225	50,320,446	5,114,373	10,177,540	874,489	10,841,578	28,141,053	55.9	22,179,393	14,653,669	16,365,650	9,232,129
Norfolk Southern	June	805	481,120	3,656	496,499	72,471	51,645	25,045	153,485	325,138	65.5	171,361	138,016	110,472	184,783
	6 mos.	805	2,071,474	17,274	2,174,535	431,351	320,241	150,082	827,761	1,857,319	85.4	317,216	119,176	8,496	139,383
Northern Pacific	June	6,720	4,597,571	434,346	5,497,622	817,863	1,197,249	190,812	1,849,670	4,325,067	78.7	1,172,555	584,377	808,791	665,585
	6 mos.	6,720	26,394,025	1,688,894	30,623,950	4,175,551	6,532,511	1,024,340	11,204,070	24,524,265	80.1	6,099,685	2,694,274	4,402,078	1,693,411
Northwestern Pacific	June	352	193,823	49,476	267,289	62,689	47,396	2,564	139,771	262,207	98.1	5,082	—14,370	—26,087	—20,212
	6 mos.	352	1,054,434	254,769	1,450,956	413,288	295,265	19,457	826,241	1,616,214	111.4	—165,258	—284,972	—349,756	—283,933
Oklahoma City-Ada-Atoka	June	132	21,220	194	23,344	5,006	1,951	712	9,812	18,948	81.2	4,396	2,327	—1,824	3,480
	6 mos.	132	128,815	1,539	141,043	27,211	9,638	4,508	63,608	114,680	81.3	26,363	12,220	—12,237	29,810
Pennsylvania	June	10,270	30,428,923	5,900,263	39,964,850	4,110,955	8,105,231	813,935	13,508,277	27,898,611	69.8	12,066,239	7,892,383	6,773,823	5,651,526
	6 mos.	10,270	167,095,910	34,053,621	220,771,964	21,400,463	44,768,379	4,394,278	80,743,659	158,844,843	71.9	61,927,121	38,947,019	33,949,374	26,811,001
Long Island	June	378	658,125	1,547,250	2,301,393	225,652	321,213	16,393	957,525	1,580,686	68.7	720,707	318,376	112,680	183,924
	6 mos.	379	3,535,858	7,421,905	11,474,545	1,242,320	2,152,610	69,445	5,655,606	9,361,931	81.6	2,112,614	456,341	—576,916	—304,188
Pennsylvania-Reading Seashore Lines	June	411	292,630	199,436	519,070	97,677	66,352	9,074	288,332	476,063	91.7	43,007	—44,696	—133,949	—181,178
	6 mos.	411	1,646,952	710,275	2,475,535	506,294	516,861	44,131	1,667,589	2,831,427	114.4	—355,892	—814,882	—1,269,045	—1,272,312
Pere Marquette	June	2,114	2,112,371	80,174	2,361,218	388,759	535,920	71,202	915,686	2,012,217	85.2	349,001	151,447	7,132	116,332
	6 mos.	2,114	14,727,066	416,525	15,934,205	2,057,484	3,344,700	390,988	6,030,411	12,402,565	77.8	3,531,640	2,433,643	1,709,937	820,767
Pittsburg & Shawmut	June	98	127,256	.....	127,450	18,018	21,157	1,965	27,321	80,555	63.2	46,895	42,909	35,617	—5,722
	6 mos.	98	592,561	.....	594,402	77,099	120,083	11,246	151,211	392,049	66.0	202,353	183,031	130,895	—22,165
Pittsburgh & West Virginia	June	136	339,104	109	353,836	59,923	72,347	17,167	78,968	251,159	71.0	102,677	77,474	77,352	35,494
	6 mos.	136	1,954,522	328	2,045,874	343,972	439,397	103,707	457,577	1,484,973	72.6	560,901	414,103	454,968	242,081
Pittsburg, Shawmut & Northern	June	190	82,859	28	83,329	20,032	15,632	1,015	28,476	70,389	84.5	12,904	7,865	—128	1,348
	6 mos.	190	598,686	28	602,988	82,290	99,472	6,467	195,863	417,820	69.3	185,168	153,608	98,429	25,107
Reading	June	1,449	4,536,435	241,991	5,004,542	417,179	976,158	70,356	1,841,782	3,454,300	69.0	1,550,242	1,057,227	1,050,391	853,782
	6 mos.	1,450	26,944,653	1,546,043	29,901,477	2,317,465	5,827,885	423,601	11,645,427	21,094,053	70.5	8,807,424	6,249,363	5,883,122	5,013,855
Richmond, Fredericksburg & Potomac	June	118	476,739	176,056	747,889	100,536	134,830	9,478	272,946	555,930	74.3	191,959	126,616	76,762	65,777
	6 mos.	118	2,566,096	1,724,606	5,024,833	562,855	858,021	59,139	1,898,253	3,695,986	73.6	1,328,847	945,536	476,105	466,443
Rutland	June	407	203,335	20,453	275,284	37,409	56,988	11,571	148,368	267,063	97.0	8,221	—12,098	—17,187	—13,001
	6 mos.	407	1,183,797	145,233	1,673,312	216,264	368,868	65,917	921,845	1,641,220	98.1	32,092	—101,937	—107,378	—101,805
St. Louis-San Francisco	June	4,814	3,348,352	299,285	3,945,993	517,410	839,798	149,668	1,387,652	3,045,848	77.2	900,145	576,474	559,161	429,112
	6 mos.	4,817	18,107,385	1,523,727	21,573,537	3,127,466	5,112,686	721,268	8,708,778	18,749,578	86.9	2,823,959	897,796	935,528	449,850
St. Louis, San Francisco & Texas	June	159	135,742	373	139,720	20,547	13,628	7,875	48,268	95,421	68.3	44,299	36,332	10,126	46,065
	6 mos.	191	626,663	2,267	656,473	135,627	82,375	47,725	305,077	603,478	91.9	52,995	4,121	—145,765	—76,806

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE AND SIX MONTHS OF CALENDAR YEAR 1940—CONTINUED

Name of road		Av. milage operated during period	Operating revenues			Operating expenses					Operating ratio	Net from railway operation	Operating income	Net railway operating income	
			Freight	Passenger	Total (inc. misc.)	Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total				1940	1939
St. Louis Southwestern Lines	June	1,649	$1,641,058	$27,204	$1,725,285	$295,298	$248,063	$87,369	$509,687	$1,236,749	71.7	$488,536	$375,451	$231,816	—$122,666
	6 mos.	1,669	9,415,344	140,532	9,941,514	1,508,038	1,553,449	503,011	3,098,527	7,154,608	72.0	2,786,906	2,119,263	1,295,546	363,768
Seaboard Air Line	June	4,314	2,629,025	429,265	3,343,564	633,304	748,393	175,507	1,296,552	3,042,854	91.0	300,710	60,710	9,354	26,867
	6 mos.	4,314	18,219,642	4,448,139	24,863,071	3,510,606	4,689,825	1,082,923	9,258,226	19,927,939	80.2	4,935,132	3,015,132	2,178,633	1,672,628
Southern Railway	June	6,594	6,544,711	773,393	7,929,186	1,077,815	1,359,729	164,574	2,736,857	5,675,846	71.6	2,253,340	1,576,788	1,350,448	1,494,756
	6 mos.	6,599	41,635,910	4,202,507	49,787,966	6,524,396	8,706,491	987,726	17,433,709	35,645,118	71.6	14,142,848	10,027,267	8,479,504	7,676,417
Alabama Great Southern	June	315	584,363	56,833	681,495	87,701	131,267	13,415	186,536	443,112	65.0	238,383	116,551	116,174	128,606
	6 mos.	315	3,275,895	269,346	3,795,356	530,504	800,695	77,309	1,122,883	2,672,960	70.4	1,122,396	684,192	704,705	740,591
Cincinnati, New Orleans & Texas Pacific	June	337	1,265,209	85,309	1,428,073	170,302	272,981	30,505	355,937	882,073	61.8	546,000	356,970	368,327	368,481
	6 mos.	337	7,848,090	628,859	8,986,431	1,043,745	1,729,604	180,077	2,335,897	5,626,667	62.6	3,359,764	2,347,967	2,429,558	2,316,694
Georgia, Southern & Florida	June	398	140,196	22,984	179,388	36,834	33,970	1,971	77,386	156,563	87.3	22,825	7,553	682	26
	6 mos.	398	864,410	294,132	1,280,500	219,980	222,360	11,184	537,567	1,045,620	81.7	234,880	138,258	72,114	70,055
New Orleans & Northeastern	June	204	205,158	16,400	238,220	35,829	33,829	5,911	70,269	158,546	66.6	79,680	48,134	25,561	18,898
	6 mos.	204	1,334,781	90,203	1,533,726	217,917	211,233	34,132	467,284	1,006,091	65.6	527,635	341,012	206,898	161,594
Southern Pacific	June	8,628	11,527,871	1,999,204	14,723,764	1,433,651	2,342,244	387,538	5,238,736	10,234,969	69.5	4,488,795	3,261,726	2,333,288	2,694,399
	6 mos.	8,640	64,242,882	9,085,427	79,887,933	8,794,897	14,770,271	2,250,644	30,234,276	60,927,507	76.3	18,960,426	11,786,537	7,248,012	7,152,345
Southern Pacific Steamship Lines	June	....	683,266	33,157	756,953	18,810	105,423	17,144	562,393	716,233	94.6	40,720	15,955	13,402	42,926
	6 mos.	....	4,137,295	169,040	4,532,525	101,940	632,954	112,831	3,248,759	4,182,050	92.3	350,475	207,695	200,727	180,731
Texas & New Orleans	June	4,417	2,799,607	317,686	3,390,824	583,241	609,571	120,389	1,192,306	2,712,213	80.0	678,611	373,950	124,357	122,458
	6 mos.	4,417	18,461,970	1,673,966	21,871,551	3,393,376	3,837,892	756,072	7,521,883	16,738,024	76.5	5,133,527	3,267,696	1,724,120	1,762,517
Spokane, Portland & Seattle	June	948	674,170	46,858	773,878	318,448	84,402	11,317	255,257	698,521	90.3	75,357	—2,370	—61,716	62,235
	6 mos.	948	3,732,566	168,640	4,224,524	950,179	515,221	62,457	1,534,273	3,231,828	76.5	992,696	546,167	257,129	163,247
Tennessee Central	June	286	176,187	6,078	195,254	42,939	34,148	6,795	68,913	162,240	83.1	33,014	24,703	13,391	—734
	6 mos.	286	1,195,615	30,125	1,304,700	233,408	203,354	41,453	448,763	987,132	75.7	317,568	235,357	145,991	54,277
Texas & Pacific	June	1,887	1,748,360	183,473	2,117,894	246,586	413,849	76,136	692,863	1,543,630	72.9	574,264	416,194	317,453	116,413
	6 mos.	1,920	10,719,081	1,062,650	12,925,996	1,522,271	2,374,033	449,348	4,168,225	9,206,729	71.2	3,719,267	2,789,102	2,197,794	1,752,648
Texas Mexican	June	162	39,302	199	50,898	10,870	8,783	3,119	33,389	62,320	122.4	—11,422	—17,154	—21,842	—5,560
	6 mos.	162	345,961	2,270	429,011	66,730	57,503	18,425	177,069	354,897	82.7	74,114	39,009	18,563	65,599
Toledo, Peoria & Western	June	239	192,397	2	195,731	37,100	14,030	17,249	43,097	123,602	63.1	72,129	45,421	29,743	18,550
	6 mos.	239	1,113,992	46	1,130,371	251,493	87,242	103,524	260,653	773,486	68.4	356,885	240,734	147,251	118,848
Union Pacific System	June	9,889	9,468,609	1,812,932	12,448,392	1,732,085	2,719,810	428,158	4,291,487	9,922,563	79.7	2,525,829	1,320,007	737,038	438,388
	6 mos.	9,892	58,938,592	7,674,420	73,154,913	7,210,725	15,047,148	2,608,637	26,133,369	55,289,347	75.6	17,865,566	10,030,544	6,296,520	4,490,907
Utah	June	111	36,336	.....	36,393	7,571	16,071	345	10,294	38,621	106.1	—2,228	—7,771	—612	—13,054
	6 mos.	111	369,356	.....	370,108	48,533	135,473	2,376	105,822	318,229	86.0	51,879	1,676	18,080	4,649
Virginian	June	639	1,867,345	2,491	1,923,439	170,933	389,908	24,324	272,974	887,049	46.1	1,036,390	726,390	793,954	788,549
	6 mos.	639	12,075,775	15,005	12,387,127	1,020,594	2,358,352	150,572	1,800,599	5,515,095	44.5	6,872,032	5,022,032	5,304,099	3,423,363
Wabash	June	2,409	2,965,582	206,892	3,426,271	535,300	597,312	154,149	1,397,165	2,835,744	82.8	590,527	360,451	22,142	1,952
	6 mos.	2,409	19,094,419	1,143,829	21,876,522	2,941,354	3,713,401	891,050	8,956,255	17,456,167	79.8	4,420,355	3,033,070	1,018,546	508,490
Ann Arbor	June	294	308,931	3,218	324,284	43,673	68,731	13,689	138,408	276,797	85.4	47,487	23,259	12,122	25,359
	6 mos.	294	1,921,743	11,533	1,985,649	197,506	429,214	81,356	882,681	1,663,533	83.8	322,116	184,958	109,186	21,806
Western Maryland	June	859	1,314,922	6,417	1,365,638	192,259	322,742	39,778	361,190	964,008	70.6	401,630	286,630	289,574	311,665
	6 mos.	859	8,711,091	34,093	9,083,485	1,104,425	1,946,496	237,369	2,399,843	5,984,868	65.9	3,098,617	2,433,617	2,455,566	1,681,249
Western Pacific	June	1,208	1,288,689	63,443	1,385,599	271,442	214,611	66,072	513,078	1,121,821	81.0	263,778	177,168	123,310	40,802
	6 mos.	1,208	7,358,754	219,175	7,747,629	1,402,175	1,281,819	371,448	3,069,270	6,462,378	83.4	1,285,251	770,576	305,987	—148,822
Wheeling & Lake Erie	June	507	1,473,772	2	1,564,991	181,481	271,173	36,123	424,452	944,614	60.4	620,377	376,905	464,373	280,102
	6 mos.	508	7,554,977	20	7,892,566	857,323	1,549,418	219,271	2,345,703	5,166,875	65.5	2,725,691	1,658,176	2,135,739	1,255,253

Weight on Drivers	270,000 pounds
Weight of Engine	483,000 pounds
Cylinders	25 x 32 inches
Diameter of Drivers	80 inches
Boiler Pressure	300 pounds
Maximum Tractive Power	63,800 pounds
Tender Capacity	Water 23,500 gals. — Fuel 25 tons

Exceptionally Low Maintenance—

Alco
AMERICAN LOCOMOTIVE COMPANY

CAPACITY
Coal—25 Tons
Water—23,500 Gals.